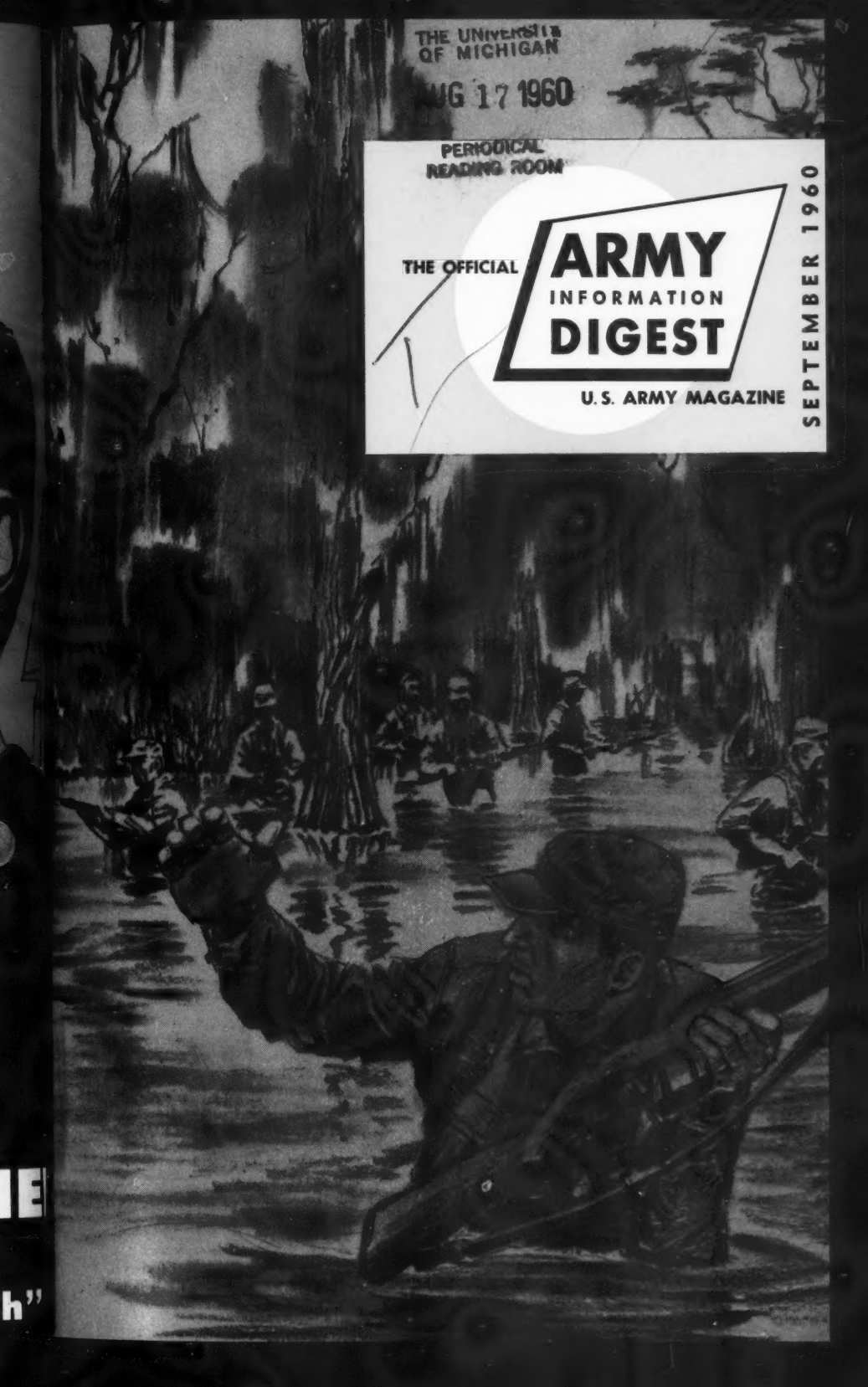
THE OFFICIAL

ARMY INFORMATION DIGEST

U.S. ARMY MAGAZINE

SEPTEMBER 1960



ARMY
INFORMATION
DIGEST

THE OFFICIAL MAGAZINE OF THE DEPARTMENT OF THE ARMY

The mission of ARMY INFORMATION DIGEST is to keep personnel of the Army aware of trends and developments of professional concern. The Digest is published under supervision of the Army Chief of Information to provide timely and authoritative information on policies, plans, operations, and technical developments of the Department of the Army to the Active Army, Army National Guard, and Army Reserve. It also serves as a vehicle for timely expression of the views of the Secretary of the Army and the Chief of Staff and assists in the achievement of information objectives of the Army.

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COVER: Essential qualities of leadership as instilled at West Point, Fort Benning and Third Army NCO Academy are analyzed and evaluated in three articles. As one who epitomized highest leadership qualities, the career of General George C. Marshall is commemorated in this issue.

COMMAND LIN

ON FORWARD STRATEGY

"After World War II, when we were forced t recognize the emergence of the Communist threat to peace, the United States was faced with choice of two basic strategies.

"We could withdraw into ourselves, behind the no longer effective barriers of the Atlantic and Pacific Oceans, into Fortress America. The Fortress America strategy has been aptly described as 'taking our first stand in the last ditch.' In my opinion, such a strategy would provide a guarantee of defeat, and mean the loss of all the values and principles for which we stand.

"In contrast, we could adopt a *forward strategy*, in which we would draw the line against aggression along the outer barriers of the Free World. It is this strategy which we adopted.

"In doing so, we adopted its corollary—the concept of *collective security*. This concept is both necessary to and made possible by our forward strategy. Collective security is therefore an absolutely inseparable element in our own national security. Through it, we gain enormously in strength and effectiveness.

General Lyman L. Lemnitzer, Army Chief of Staff in Armed Forces Day address Savannah, Georgia, 21 May 196

ON SUPPORT OF "FORWARD STRATEGY"

"Forward strategy places our front lines of defense far beyond the frontiers of our own country. It is the basis of our present national military policy which links the United States with more than 40 other nations associated with us in a world-wide structure of collective security which has been built with painstaking care since World War II.

"Our own Army forces are deployed today in more than 70 foreign lands. Through military aid and training assistance we help our allies to maintain ground forces of nearly five million, naval forces of 2,300 combat ships, and air forces with 29,000 aircraft. All these are as much part and parcel of the defensive strength of the United States as they are of the individual countries concerned. Our allies also furnish us the use of 25 foreign bases, many of which are absolutely essential to the deterrent capability of our strategic retaliatory forces."

Secretary of the Army Wilber M. Brucker at dedication of Houghton-Hancock Bridge Michigan, 25 June 196

FEATURES

BRIEFS

THE OFFICIAL ARMY INFORMATION DIGEST
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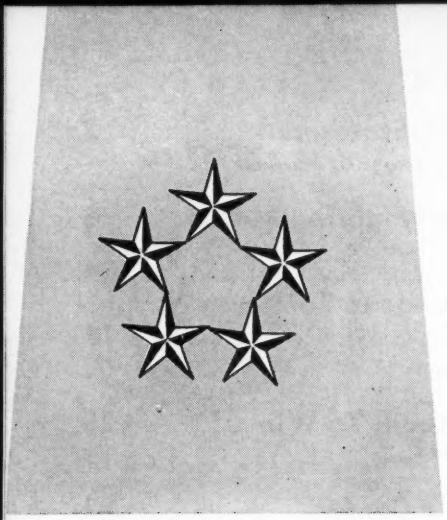


Soldier, Leader, Statesman—

IN THE months since his death on 16 October 1959, the life and leadership exemplified by General of the Army George Catlett Marshall has continued to exert great influence.

During his lifetime, the former Secretary of State and Secretary of Defense, and Army Chief of Staff in World War II, declined substantial monetary offers for his memoirs; instead, he gave his records to the George C. Marshall Research Foundation. Chartered in 1953 and now headed by General of the Army Omar N. Bradley, the Foundation is currently collecting private papers and performing research to document the life and public service of George Marshall. A library to house the collection is planned at Lexington, Virginia.

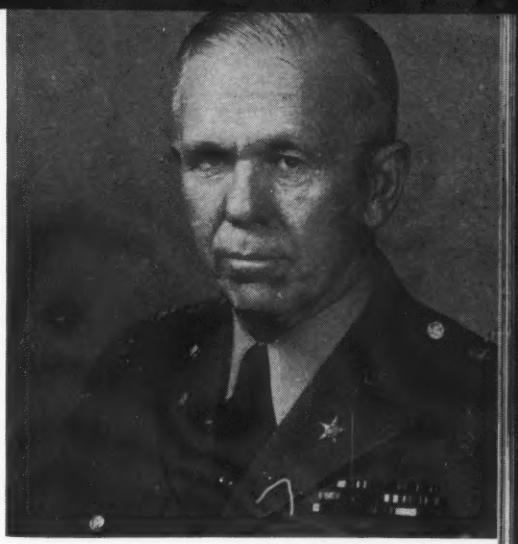
Dr. Forrest C. Pogue, historian, author of *The Supreme Command*, and director of the Marshall Research Center, is preparing an authorized biography and other writings based on more than forty hours of tape recorded interviews in which General Marshall commented candidly on questions of strategy, manpower, war production, leadership, training. This material will be supplemented by recorded interviews with more than 125 former associates. Proceeds will go to the Foundation to continue research on problems of peace and war.

Recently Fort McClellan, Alabama, home of the Women's Army Corps, named its parade ground in honor of the late General Marshall, who was one of the first advocates of women in the service, and was instrumental in establishing the WAC.

The Infantry School at Fort Benning, Georgia, in honor of its former Commandant, has established the George C. Marshall Awards to extend recognition to members of the Infantry Officer Advanced Class who submit articles making the best contribution to the military art. This year, too, the Association of the United States Army inaugurated the Marshall Memorial Dinner as the highlight of its annual meeting.

Just 21 years ago this month, General Marshall was sworn in as Army Chief of Staff. In a multitude of ways, his life exemplifies the qualities of leadership, tempered with tact, firmness and faith, that make for enduring greatness.—*Editor.*

General of the Army George C. Marshall



THE DATE 1 September 1939 is a red-letter date in world history. On that memorable day Adolf Hitler's armies marched into Poland, thereby setting off World War II. Significantly, it was also the day on which George C. Marshall, architect of Germany's military defeat, was sworn in as Chief of Staff of the United States Army.

The Army of which Marshall took command was certainly not impressive in strength—at least initially. With its 188,000 underequipped and scattered troops, and 13,000 officers, it did not stand comparison with the well-oiled Hitler machine. Yet, by 1945, the United States Army had marshalled the greatest force that history had seen —eight and one quarter million men, with 69,000 planes and more equipment than the rest of the world combined.

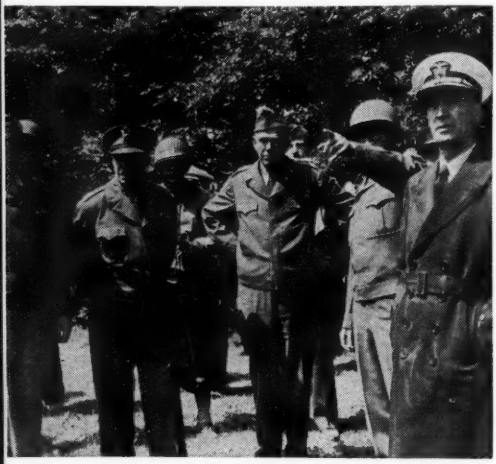
As Chief of Staff, Marshall was the professional head of the Nation's military establishment, and therefore chiefly responsible for the mobilization, organization, equipment and training of its military forces. This fact alone entitles him to a place in United States history alongside the Nation's great.

General Marshall's career coincided almost exactly with the first fifty years of the Twentieth Century, in which the United States was to develop from an isolated but fast growing young giant to its present position in world affairs. During this era the Nation was to engage in three major wars and rise to lead the Free World against the new threat of Communism. In all these developments, Marshall was a leader.

When he graduated from Virginia Military Institute in 1901, the United States was just stretching its muscles as a world power. The Spanish-American War had been fought three years before, resulting in the acquisition of new territories and new world commitments. Marshall saw action in the Philippines from 1902 to 1903 and returned there from 1913 to 1916.

In World War I, as G-3 of the 1st Division, G-3 of the 1st Army, and as a member of the G-3 section of GHQ, Marshall played an important role. While on the staff of General John J. Pershing in Chaumont, France, he drafted the plans for the St. Mihiel offensive. He also helped prepare the Argonne offensive by transferring 500,000

As a colonel, Marshall stands at right with Gen. Pershing as Marshal Foch bids adieu to AEF commander following World War I.



As Chief of Staff, he visits Gens. Arnold, Eisenhower, Bradley, Adm. King in Europe. Below, as Secretary of Defense, he rides with Gen. Ridgway in Korea.

troops and 2,700 guns to that front.

In October 1918, Marshall was appointed Chief of Staff of the Eighth Army Corps. While overseas he rose to the rank of temporary colonel and became aide-de-camp to General Pershing, a post he held until 1924.

From 1924 to 1927 he served in China, acquiring experience which was to prove valuable following World War II.

One of his major contributions stemmed from his work at Fort Benning from 1927 to 1932. There he developed new doctrines and helped to train future leaders such as Generals Bradley, Hodges, Collins, Ridgway, Stilwell, Bolte and Bedell Smith, who were among his students or faculty associates.

From 1933 to 1938, Marshall acquired wide experience with National Guard and Civilian Conservation Corps units. This was to stand him in good stead when he later developed the Army of "citizens in uniform" which was to win World War II.

When war clouds lowered in 1939, President Roosevelt picked General Marshall as Chief of Staff. The sagacity of this choice is evident from the record. Throughout World War II, Marshall organized and directed the war effort as it spread to five continents. He was present as Roosevelt's adviser at the principal international conferences of the war, where many fateful decisions were reached.

After the war had been won, the country was faced with a new challenge—that of countering the Communist threat. He was again to show his statecraft—this time on the treacherous battlefield of the "cold war." After serving as the

PRESENTATION of the first two General George C. Marshall awards for outstanding military writing was made recently by the widow of the late general at The Infantry School, Fort Benning, Georgia.

The Marshall Award was established by The Infantry School to bring recognition to the member of each Infantry Officer Advanced Class who submits, as part of the Effective Writing Program, the article which makes the best contribution to the military art.

First winners—whose articles were printed in the June-July issue of *Infantry* — were Captain Larry S. Mickel of Advanced Class No. 1 and Captain Hugh P. McWhinnie, Class No. 2. Captain Mickel's article was entitled "Sharpen the Sword," while Captain McWhinnie wrote "The Case for a Strategic Assault Force."

President's Special Representative to China from November 1945 to January 1947, he served as Secretary of State from January 1947 to January 1949.

A memorable landmark during this period was his sponsorship of the Marshall Plan, which turned the political and economic tide in Europe with United States economic help. This and his efforts in laying the groundwork for the North Atlantic Treaty Organization stand as monuments to his stature as a statesman.

During the postwar years, Marshall took a deep interest in memorializing the final resting places of servicemen overseas. He served on the American Battle Monuments Commission from 1946 to 1959, from 1949 on as Chairman. From 1949 to 1950 he was also President of the American National Red Cross.

International recognition was added to that of his countrymen when, in 1953, George C. Marshall was awarded the Nobel Peace Prize for his work in furtherance of world peace.

When he retired as Secretary of State, it was only to return to serve his country again as Secretary of Defense during the Korean War. Again he planned and mobilized the Nation's defenses.

Perhaps the most apt tribute to the man was made by Secretary of War Stimson, under whom he served during World War II. "No one who is thinking of himself can rise to true heights . . . General Marshall's leadership takes its authority directly from his great strength of character. I have never known a man who seemed so surely to breathe the democratic American spirit. He is a soldier, and yet he has a profound distaste for anything that savors of militarism.

"I have seen a great many soldiers in my lifetime, and you, sir, are the finest soldier I have ever known."

At Allied Headquarters, Algeria, 1943, Chief of Staff Marshall chats with General Dwight D. Eisenhower.

At Fort Benning, future leaders are tempered, tested, toughened, to produce

A New Breed of Fighting

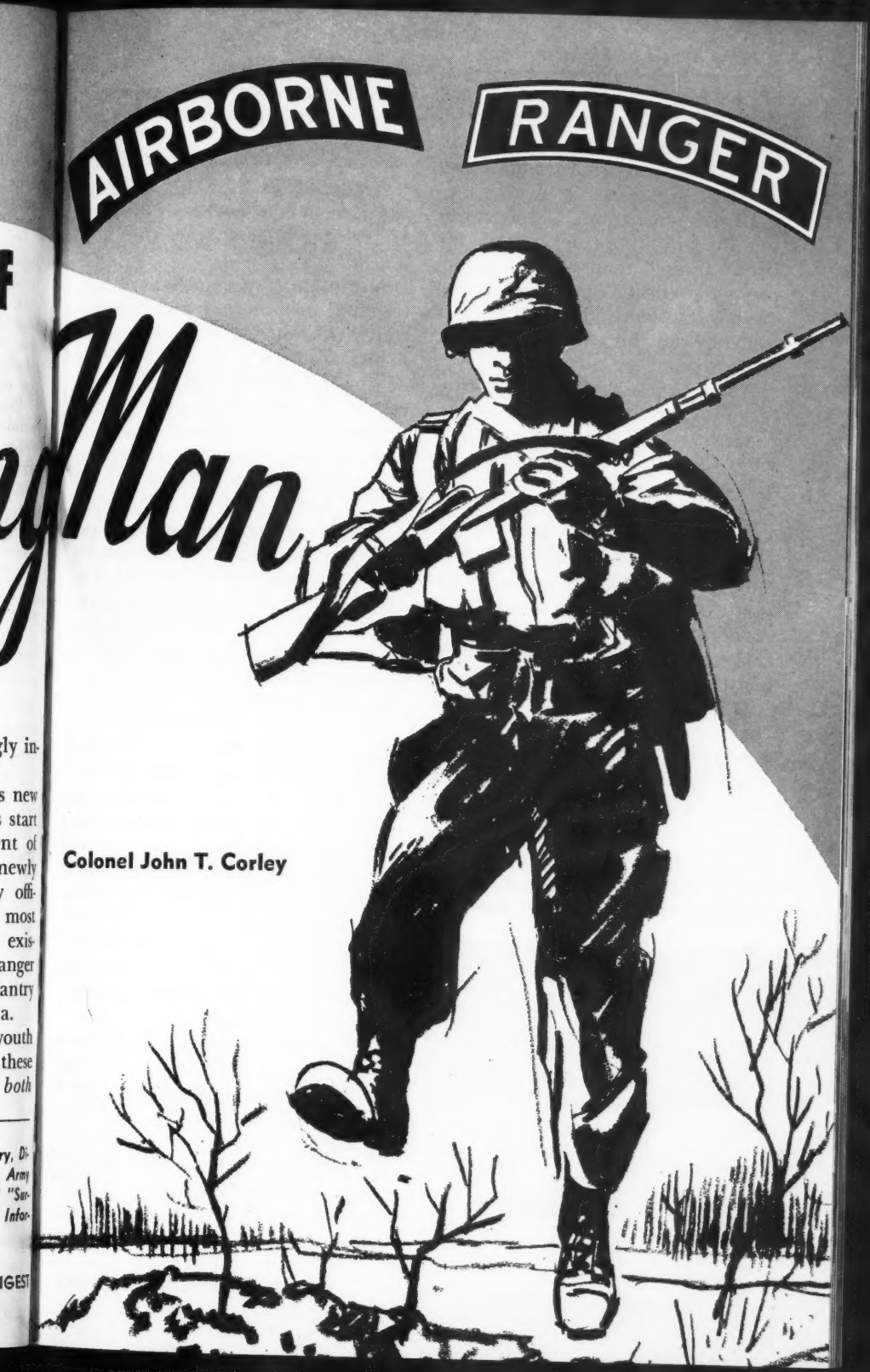
TRADITIONALLY, the United States Army has emphasized tough, realistic training for newly commissioned officers as a key element in over-all combat readiness. The lessons of former wars have demonstrated that junior leaders on tomorrow's battlefield must be ready today.

The dazzling technological advancements of the last decade have greatly increased the need for developing young Infantry leaders with the highest possible standards of leadership, initiative, resourcefulness and the capability for aggressive, independent action under all possible conditions of combat. They must be capable of responding at a moment's notice to situations requiring the utmost determination in the face of seemingly insurmountable obstacles.

The first generation of this new breed of fighting men had its start in 1954 when the Department of the Army directed that all newly commissioned Regular Army officers attend one of the two most challenging Army courses in existence—the Airborne and Ranger courses conducted at The Infantry School, Fort Benning, Georgia.

It is a tribute to American youth that some seventy percent of these future leaders volunteer for *both*

COLONEL JOHN T. CORLEY, Infantry, Director of the Ranger Department, U. S. Army Infantry School, 1957-60, is author of "Survival Training" in the June 1959 Army Information Digest.


AIRBORNE
RANGER
Man
Colonel John T. Corley

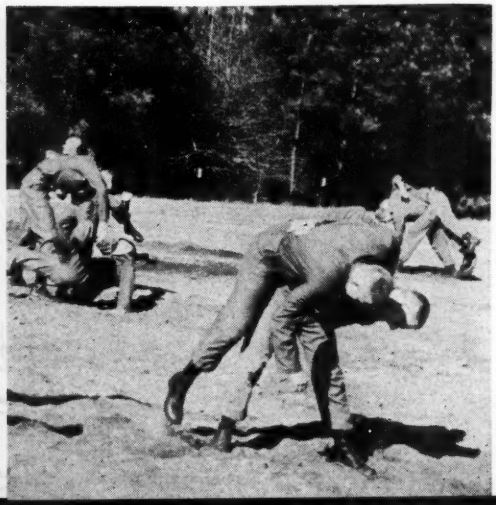
of these rigorous courses. Of the West Point Class of 1960 who selected Infantry, 95 percent volunteered for both Airborne and Ranger training.

Largely as a result of this training, the Infantry leader today is far better trained than was his predecessor of World War II and Korea. He has combat-conditioned himself even before his first assignment with troops.

After witnessing this combat-conditioning recently, a senior observer commented, "Ranger training provides the equivalent experience of two or three campaigns in battle." The fact that few of the junior leaders of today have had the advantage of actual combat experience makes it all the more important that they undergo the rigors of Airborne or Ranger training. Such training is of benefit to any man regardless of branch or service.

Old soldiers are often heard to comment on the "old days" and the quality of the fighting men of past wars. But it is too late now to write about the past. The combat leaders of tomorrow, like the Revolutionary Minuteman, must be ready *now*.

"Hand-to-hand combat and bayonet training aid in the initial development of self-confidence so essential in this course."



Combat Effectiveness Emphasized

A CLOSE look at the Airborne and Ranger courses reveals the kind of training that spawns this new breed.

Minimum physical standards are required prior to entry into either course. Although the American way of life does not foster a high level of physical fitness, over eighty percent of the potential students qualify for entrance. Those volunteering for both courses usually take Airborne prior to Ranger.

The Airborne student's training is not restricted to the technical aspects of parachuting, but includes his preparation for combat. The airborne physical training program is directed more toward preparing or screening men for combat effectiveness than for acquisition of parachuting techniques.

Parachuting into combat requires unusual stamina. Combat missions must be executed immediately after a jump, and this requires men in better-than-average physical condition.

During the intensive three and one-half week course, the Airborne student physically hardens himself and improves his agility and coordination. He gains confidence in his equipment, his fellow students and in his own ability.

No greater example of self-confidence can be found than that exhibited at the moment the paratrooper leaps earthward. He must be mentally alert, to respond promptly to instructions and to measure up to the demanding and rigorous standards of Airborne training. He absorbs the esprit of

Modern Military Leadership

"The importance to military strength of leadership of uncompromising quality is not by any means lessened by the advances in technology which have taken place. On the contrary, the importance of such leadership has been greatly magnified. These technological advances mean that war in this era could take forms and reach intensities which differ from anything in human experience. Consequently, in addition to absorbing the great emotional and psychological shock of combat, men must now overcome the instinctive human dread of the unknown. The responsibility to imbue them with the determination and courage to do so rests squarely upon their leaders. This responsibility has increased in direct proportion to the intensity of the pressures which must be withstood."

General Lyman L. Lemnitzer, Army Chief of Staff, at the U. S. Military Academy, West Point, New York, 8 June 1960.

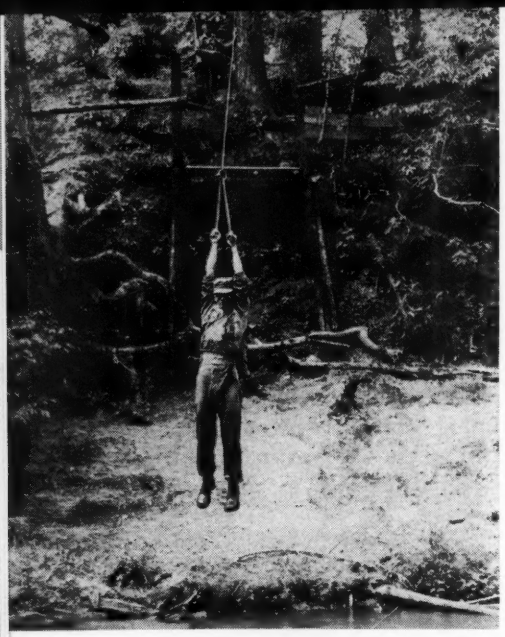
the airborne soldier and lays the foundation for further training in an airborne unit. The Airborne course requires an unusually high level of motivation, and all graduating students are proud of their unique accomplishment.

Historically, parachutists have been considered special troops. The daring task of jumping from an airplane has always attracted men of adventure and those seeking prestige. Airborne units have repeatedly been chosen for special tasks. In World War II airborne forces were assigned the most dramatic and critical missions requiring mobility, surprise and shock action. On occupation duty, airborne troops were given the most conspicuous assignments. It is traditional for airborne leaders to consider themselves part of a special group of volunteers. The Airborne man is proud of his heritage.

Ranger Readiness

IN Ranger training, the individual is combat-conditioned in a realistic eight-week training program devoted mainly to practical field

Army Ranger in patrol uniform.



Suspension traverse river crossing technique helps teach Rangers how to use difficult terrain to their own advantage.

exercises conducted mostly at night. During the first two weeks the Ranger student trains at Fort Benning in preparation for the Florida and mountain phases. He reviews the basic skills of soldiering and physically hardens himself. Hand-to-hand combat and bayonet training aid in the initial development of self-confidence so essential in this course.

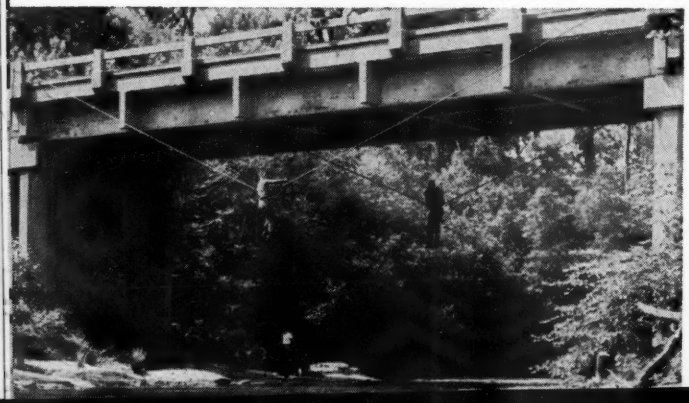
Classes in demolitions, intelligence, map and aerial photo reading, and troop-leading procedures are included in the initial phase, as well as classes on mines and booby traps, aerial movement and resupply, patrol techniques, artillery support, and communications. Emphasis is on practical work and the development of good, basic combat habits. Under the stress of this rigorous schedule, some students fall by the wayside.

Action in Florida

THE second phase is conducted at the Florida Ranger Camp where the Ranger trains in swamp, jungle, waterborne and air-landed operations. Because of its size and varied terrain, this 190,000-acre training area, located within Eglin Air Force Base, is ideal for Ranger training.

From this site modern-day Rangers move out to perform clandestine operations against a jungle-trained and experienced Aggressor force. One exercise alone exposes the Ranger to off-shore islands, ocean surf, coastal dunes, jungle-like swamps, tropical rivers, and scrub oak and pine wastelands. Every change in terrain requires a reevaluation of tactics.

Fatigue and hunger are an inherent part of the Florida training, requiring maximum effort by every man. The Ranger soon approaches the condition of a soldier exposed



Preparing to blow up a bridge is part of training in demolitions given during initial training phase.

to prolonged combat. He experiences periods of hunger, fatigue and strain, while being forced to react to a series of related tactical situations.

There is no announced schedule. Operations are conducted mostly at night over seemingly impassable terrain. The Ranger soon learns that almost no obstacle is impassable for a well-trained soldier. Training is realistic, rough, and to a degree hazardous—the closest approach to combat conditions available in a peacetime Army.

Patrol Actions

THE final phase, conducted in the foothills of the Blue Ridge Mountains in North Georgia, follows the same pattern as in Florida. Here one finds mountainous terrain that is heavily wooded in pine, hemlock, and scrub oak, with few

Learning how to evacuate a "casualty" in rocky terrain is part of rugged training designed to instill resourcefulness.

The Challenge of Leadership

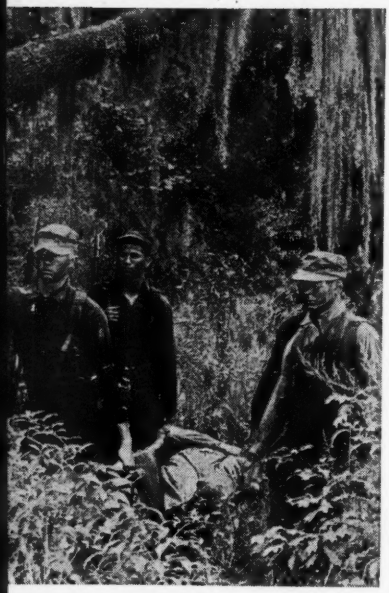
"Leadership is one of the oldest and most distinctive arts in the profession of arms; in its simplest definition, it is the art of directing the actions of others. By-and-large it amounts to the guidance, direction or control a leader exercises over his subordinates—and it is still a most challenging art to master in this day and age! For the most part, the normal burden of military and naval leadership is multiplied by such current problems as—rapid turnover of personnel, shortage of experienced subordinates, the training and command of men from many nations, but most importantly by the ever-increasing impact of science and technology on the development and employment of new weapons and equipment.

"Acquiring the art of leadership is simply a matter of mastering certain techniques, understanding men and building up those sterling qualities that give effective and full expression to your natural talents. The average man can be a good potential leader provided he is willing to work diligently at being one . . .

"Do not err, however, in thinking that leadership derives from a deep voice, a parade ground carriage, or athletic prowess. These attributes are rightly associated with good leadership, but real leadership comes from within and is more dependent upon character and knowledge than on outward appearances."

Lieutenant General Arthur G. Trudeau,
Chief of Army Research and Development.

The Ranger soon learns that almost no obstacle is impassable for well-trained men. Here a group crosses a stream.

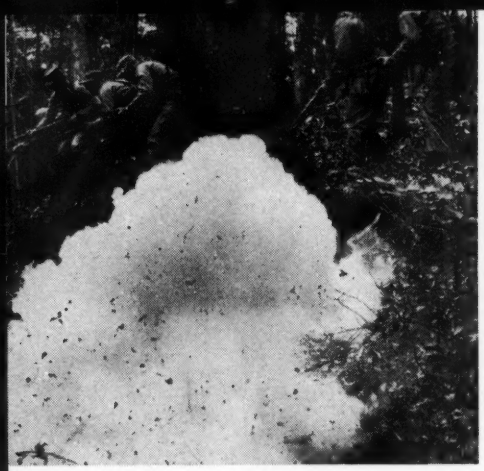


Swamp, jungle, water-borne and air-landed operations form second phase of Ranger training. Left, casualty evacuation is conducted in marshy area. Right, men learn how to negotiate a swamp. Below, patrol lands from an inflatable boat.

A patrol receives briefing on its mission during night training—an important part of program for Ranger groups.

Ponchos can be used to make a raft, men learn as they practice using field expedients in a river-crossing problem.

When a stream is not too deep the men advance through it, with rifle in one hand, heavy cutting knives in other to clear the brush from their route of advance.



A grenade tossed into Aggressor stronghold is backed up by riflemen at the ready. Right, trainees learn techniques of exiting from plane before making actual jump.

roads or trails. Initially the Ranger develops his mountain techniques, learning how to use the rugged terrain to advantage.

WHEN basic mountain techniques have been learned, the patrol again becomes the vehicle of instruction. Day and night, patrols surge forward against Aggressors tactically located to impede their advance. The final operation is a series of ranger patrols carried out over a five-day period, forty miles within enemy lines.

Patrols are airlifted by helicopter to a landing zone behind Aggressor front lines, then move cross-country over the mountains to take out objectives deep within Aggressor rear areas. The route is beset with difficult obstacles requiring the utmost resourcefulness to negotiate. New missions are assigned as the Ranger develops the situation. Upon completing the last mission, the patrol is airlifted by helicopter to friendly lines.

Both in the mountains and in Florida, the Ranger experiences the complete isolation of the battlefield. He encounters no habitations or friendly civilians to dispel the realism. He is on his own, working against the terrain, the weather, and an Aggressor enemy, who forces him into unexpected situations requiring prompt, sound decisions. By necessity, the Ranger must be attentive to detail; otherwise his own survival may be at stake. High standards are a *must;* prompt obedience and iron discipline are an integral part of day-to-day operations. In eight weeks of training he covers more than 800 hours of practical work, while developing self-confidence and self-discipline. He becomes a resourceful, rugged fighting man who realizes what it is like to operate deep behind enemy lines and outfight a ruthless, determined enemy.

Men who may make excellent tactical decisions in a classroom or a normal training program sometimes fail miserably under stress of a combat situation. Hunger, fatigue and strain may uncover weaknesses an individual never knew he

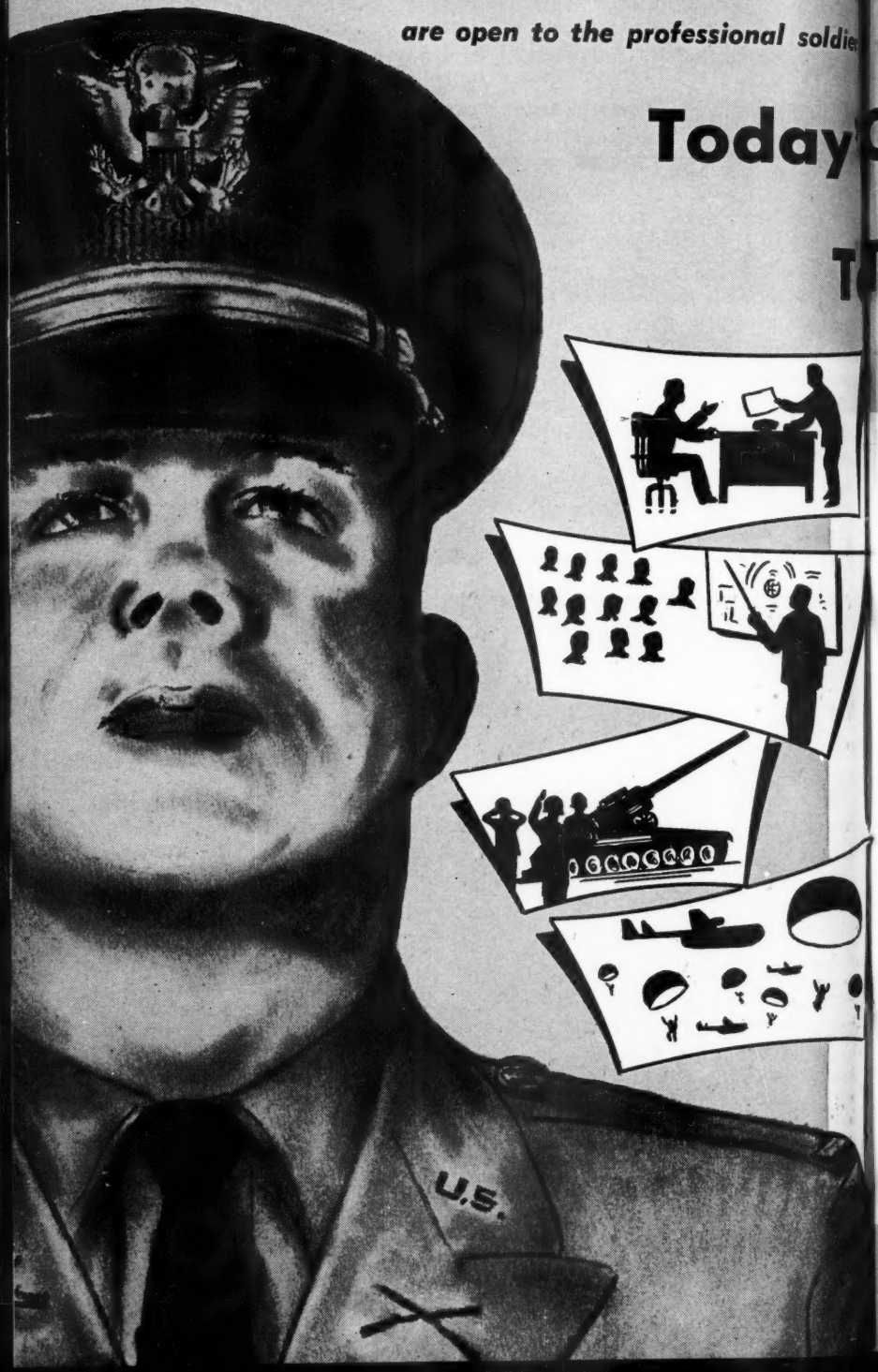
had. A man in Ranger training thus gains an insight into himself and his fellow man. Attrition is high, for only the best can survive.

COMBAT leaders emerging from Ranger training have been tested and toughened in the nearest thing to actual combat. Their leadership qualities have been "proved out." More than muscles and reflexes have been toned up. A combat-minded outlook has been created. Through training such as this, a seasoned small unit leader is developed—a leader mentally and physically capable of sustained action under any conditions the future battlefield may offer.

These men of the new breed have learned well the most important lesson of Ranger and Airborne training—"A man can do anything within his physical capability, even exceeding his previously self-established limit of endurance, provided he has the *will to succeed.*"

Each man is imbued with combat know-how and the ability to apply his training. The value of such men will be fully realized in succeeding years as they carry forward this concept to the training of their units in the field. Soldiers serving under such leaders can have every confidence that actual battle, when it comes, will be "old stuff" to this new breed of fighting man.

Proud of their achievements, graduating members of the Airborne course which "requires an unusually high level of motivation," receive their jump wings.


New vistas of responsibility and ser
are open to the professional soldie
Today
U.S.

The Challenge of Tomorrow's Leaders

Colonel Richard G. Stilwell

CAN today's soldier look forward to the day when he can again concentrate exclusively on his ultimate role of combat?

Never—so long as the United States wears the mantle of Free World leadership.

While he must be trained and prepared to fight battles—big or little—the Soldier of tomorrow has the overriding task of *preventing* war while preserving and advancing our Nation's security. Indeed, in the latter half of the 20th Century and beyond, the Soldier will fulfill the noblest measure of his responsibilities when he gains the Nation's objectives bloodlessly. Thus the whole new range of tasks will continue and will grow in difficulty, and others will arise to challenge those who aspire to the title of Soldier.

To prevent war, our Nation must be ready for war. The very business of being technically, physically and mentally prepared for war will prove exceedingly tough, as the rate of scientific innovation continues to

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COLONEL RICHARD G. STILWELL, Infantry, is Commander, Headquarters, Second Regiment, Corps of Cadets, United States Military Academy. This article is based on a recent presentation on "The Challenge of the Profession of Arms" to West Point Cadets.

outstrip the ability of soldier and statesman to devise concepts for the use of new weapon systems. The reality and the imperatives of the nuclear age will press on all sides. Vision will be needed to embrace new doctrine and to discard the outmoded. There will be a demand for cool nerves and plain guts.

It is likely that tomorrow's professional soldier will be the counselor of the Free World's armies, navies and air forces as weapons of greater and greater sophistication are furnished, and the need for closer integration of allied capabilities and our own becomes more urgent. His voice will be heard in

At historic U. S. Military Academy high above the rolling Hudson at West Point, the fledgling officer learns not only how to parade, and the basics of his profession. . .

the councils of state and in graduate institutions; but his hands will also be grimy and calloused in back-breaking labor.

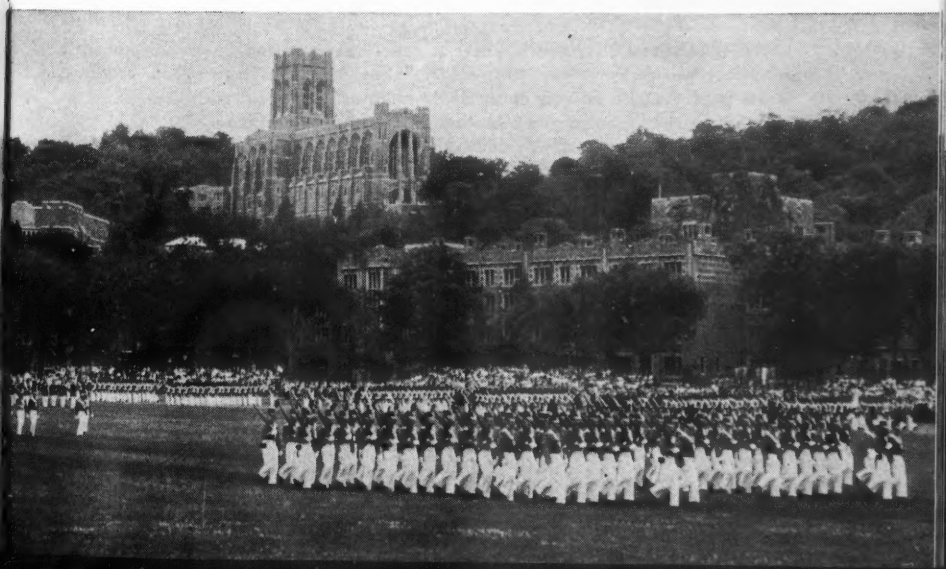
He will know the society and capitals of the world intimately; but in the quest of an orderly world he may also serve in swamps and polar regions. He will draft staff papers in luxurious air conditioned offices; but he will also struggle with foreign dialects in the heat and squalor of less developed lands. He will sometimes talk from the pulpit, for he will always be part chaplain; but sometimes, also, he may be called upon to fight, perhaps to die, defending our Country.

When the guns roar, he will be as one with the band at Thermopylae, with the Knights Templar in the Holy Land, with the men of Concord and Lexington, of the Alamo, Bataan, Bastogne and Iwo Jima. And when the guns are silent, his disciplined power will serve in countless ways to further his Country's security.

His Country, yes! He reveres his Country as the supreme political manifestation of the will of society. His obedience to his Country's dictates is unquestioning. As the instrument specifically responsible for the security of the United States, he is sensitive to every threat, actual or potential. And he is the conscience, insistently urging the measures and sacrifices — unpalatable though they may be—needed to face up to those threats.

The professional Soldier's allegiance is as deep and abiding as the allegiance of minister, priest and rabbi to the Maker. The kinship between Soldier of God and Soldier of State is closer than most of us recognize. Think for a moment of Washington on his knees at Valley Forge; of Polk and Sherman at the head of the advance with sword on Bible; of Patton's Christmas message during the gloom of the Ardennes. Both categories of Soldiers mingle freely with their fellowman; but both have

. . . but more important he learns how to develop inherent qualities of courage, initiative and will-power that throughout his career will make him a leader of men.



responsibilities setting them apart from and above the common level. These principles are the essence of military professionalism.

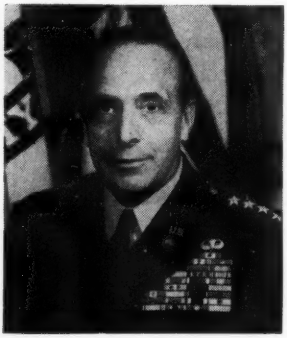
Professional Qualities

WHAT must be the attributes of the man who desires to join the profession of arms?

The officer of tomorrow will need an education of such breadth and depth that a college degree can be considered only the foundation. It may stop at graduation for some, but the real Soldier, the professional, can never have enough knowledge to feel over-confident about the multiple demands of modern operations; to evaluate fully the nature and implications of future conflict; to meet the scientific community continuously and on equal terms; or to insure that his instruction and guidance of subordinates is comprehensive and faultless.

He must, therefore, dig and study and think—building the superstructure on that initial base—throughout his career. Periodically, he will be sent to school to study in leisure and concentrate without distraction. For the most part, however, such effort at self-improvement must be superimposed on a full day's work and sustained by the strength of his will.

A drive for continuous self-education is thus a hallmark for the



LEADERSHIP:

An Honor

An Obligation

A Challenge

"THE qualities that distinguish an officer from other men are courage, initiative, will power, and knowledge. These qualities have been required in the past and the advent of nuclear weapons and great technical developments have not changed the situation in the slightest degree.

"To take these important qualities in turn. The kind of courage required is the courage that endures—the courage that never fails in times of stress. Anyone can be brave for a little while, but the officer goes on being brave when others falter and quit. An officer has a moral and spiritual courage that clearly defines his duty and makes him do that duty without any thought whatsoever of the consequences to himself.

"Initiative means that you don't sit down and wait for something to happen. You cause things to happen and happen your way. If, on the battlefield, you wait for something to happen, it will happen all right, but it will happen the enemy's way and you'll wish it never happened at all. Initiative, for the officer, means that he thinks ahead, that he is always several jumps ahead of the men he leads and always a long way ahead of the enemy. Keep your minds alert, incisive, and flexible.

Soldier of tomorrow. Yet it is far from the whole story. The ingredients from which a capacity to lead effectively is distilled find their origins more in the heart and spirit than in the mind.

There is, of course, courage—the raw physical courage, for instance, of that Marine major, frogman par excellence, whom I sent swimming ashore in the icy waters off the North Korean coast to infiltrate the beach defenses and bring back emissaries of the anti-Communist underground. Or that demonstrated by an incident I recall in Belgium, January 1945, as the last German offensive ground to a halt.

In an improvised field hospital lay a young soldier. Technically, he was not a professional since he had been away from his mid-western farm just a scant six months. The night before he had almost single-handedly broken up an attack by fanatic SS troopers. The result: numerous wounds, among them a leg badly mangled by mortar fragments and requiring speedy amputation. I heard the Chaplain offer condolences on the loss of that limb. And I heard this youngster reply, "Father, I didn't lose my leg. I *gave* my leg to my country." Wherever that man is now, he wears next to his DSC a badge inscribed: "Soldier."

But there is another dimension

"Will power means that you will force through and accomplish what you think is right and what you consider to be your duty. You do this not only against the efforts of the enemy on the battlefield, but against the opposition of well-meaning friends and of all the doubts and difficulties of men and nature which will oppose and attack you.

"Knowledge means that you have no business being an officer unless you know more about what you are doing and what your unit is doing than those you lead. When you leave West Point, you will not have finished learning. You will never finish learning. An officer is always learning. Whenever an officer considers he is through learning—he is through, period!

"If you have these important qualities of courage, initiative, will power and knowledge, you will be a leader but you will not necessarily be a good leader. You still may not have that indefinable grip on, and control of, men when things go wrong—as they so often do on the battlefield.

"When a man's heart sinks into the pit of his stomach with fear—and all men experience fear; when the supporting air strike or artillery barrage, which you counted on, and was such an important factor in carrying out your plans, fails to materialize; when ammunition doesn't come through as scheduled; when there are no rations; when the enemy is beating the living daylights out of you—then you will need one other quality, and unless you have it you will still not be a good leader.

"That quality is self-sacrifice, and as far as you are concerned it means simply this—that you will put duty, honor and the interest of your country first. Next, you will put the safety, well-being and security of the men you lead; and last—and last all the time—you will put your own interest, your own safety and your own comfort. Then, and only then, will you be a good officer."

General Lyman L. Lemnitzer, Army Chief of Staff, at Graduation Exercises, United States Military Academy, West Point, New York, 8 June 1960.

"When the guns roar he will be as one with the band at Thermopylae—or the Knights Templar in the Holy Land."

to courage, in many respects more exacting and certainly much more frequently on call. This is the moral side of courage—the choosing of the harder right; the unhesitating refusal to compromise with one's firmly held values; the silent acceptance of criticisms and penalties for one's actions or omissions because transfer of responsibility to subordinates, however feasible, would involve some loss of self—and their—respect.

There are many times when the application of moral courage involves the unpopular, when it conflicts with man's desire to conform. The Soldier of integrity scorns conformity with the prevailing trends. Similarly, while he accepts popularity as a dividend, he rejects it out of hand as an end in itself.

The true Soldier can never submit to the temptations of the easy, partial solution, for he knows one day that the tempered steel of his body, mind and soul must contain no impurities. That day will come when the men, whose lives and welfare are entrusted to him—a lonely figure supported only by his God, Country and ideals—await his de-

"The reality of the nuclear age will press on all sides. Vision will be needed to embrace new doctrine . . . There will be a demand for cool nerves and plain guts."

cision among equally dangerous alternatives and have no recourse but to follow resolutely where he leads.

Standards of Leadership

DEDICATION to country whatever her demands, conviction that as go the Soldiers, so go the fortunes of the Nation; belief that every task demands the highest level of performance, whether others will know or not—these, also, are the criteria of leadership.

There is no denying that these are rugged criteria. Down through the years only a handful have met the tests in full. But then ideals are no good unless just out of reach, strive as one may. What counts is that Soldiers remain true to their goals.

The rewards for adhering to these exacting requirements are many. There are prestige, respect and financial recompense from the moment the professional soldier dons the uniform. The varied nature of his service will provide unique opportunities to broaden his professional and personal perspective. Gazetteers and headlines will come alive as he rubs shoulders with people of other lands, appreciates their cultures, customs and problems, and promotes mutual

"The business of being technically, physically and mentally prepared for war will prove exceedingly tough as the rate of scientific . . .

. . . innovations continues to outstrip the ability of soldier and statesman to devise concepts for the use of new weapons systems."

"He will sometimes talk from the pulpit . . . but sometimes he may be called on to fight in defense of our country."

To maintain himself as a leader under changing concepts of modern war, the soldier must study his job continuously.

understanding among our allies. In short, he will participate in the fashioning of history as he is entrusted with tasks of increasing importance.

In the last analysis, however, all these rewards are superficial and transitory. The Soldier's enduring satisfactions lie elsewhere — and their lustre never dims. His is the transcendent pride of association with other soldiers who share his ideals, principles and values; of tests sweated and bled for but met in full whatever the circumstances. His is the pride of having devoted his life to insuring that his Country thrives under a still vibrant Constitution.

The challenge of the profession of arms is simply stated. But the tortuous path to the military ideal is only for those of strong spirit and unflinching devotion.

Will you—the professional Soldier—walk the path? Will you be ready to receive and carry on the responsibilities of leadership which must be nurtured and constantly renewed in every generation?

"The officer of tomorrow will need an education of such breadth and depth that a college degree can be considered only the foundation . . . The real soldier can never have enough knowledge."

The role of the Noncommissioned Officer in One Army—

To Train, To Lead, To Win . . .

Lieutenant Colonel Gerald R. Wilson

IN THESE days of anxiety about obsolence of the Army's combat equipment and concern over need for improved weapons, communication devices, and mobility, it is easy to overlook another critical problem which also stems from today's avalanche of technological advances. This problem is personnel.

The problem directly concerns the men who must operate and maintain the increasingly complicated military equipment which differentiates today's Army from that of World War II, or even that of Korea. It concerns the leadership, training and technical proficiency of the men who will be required to operate and maintain the infinitely more complicated materiel of tomorrow's Army.

Comparatively, the Army today gets a higher caliber of young men than at any time in its history. This is the calculated result of policy changes which upgraded the Army's entry standards. In short, the Army

LIEUTENANT COLONEL GERALD R. WILSON, Infantry, is Commandant, Third U. S. Army Noncommissioned Officer Academy, Fort Jackson, South Carolina.

"Comparatively the Army today gets a higher caliber of young men than at any time in its history—a result of policy changes which upgraded entry standards."

today has the best raw material—in terms of manpower—that it can reasonably expect with which to meet its personnel problem.

The problem itself stems in large part from the almost daily changes in battlefield concepts which, in turn, are the product of continuing discoveries in every field of science and engineering. In this situation, the optimum utilization of the Army's manpower depends on training. It calls for a meticulously tailored program applied with consummate skill. The key element in achieving this goal is the Noncommissioned Officer.

By tradition and by necessity, the Noncommissioned Officers' Corps is the Army component which conducts training of new manpower. Any realistic training program for the soldiers of today and tomorrow has its basic limitations in the capabilities of incoming manpower to learn, and of Noncommissioned Officers to teach.

On the nuclear battlefield of the future, with its wide dispersion, utter devastation and disrupted communications, discipline most certainly is an absolute necessity. Similarly, field sanitation, proficiency in small arms, cover and concealment, first aid, field fortifications, continue as time-honored military skills which constitute the curriculum of basic training.

In modern Army training, we merely have added a few things. There are more weapons, for example, about which the soldier must have some basic knowledge in order to function effectively and further to assume command if necessary. There are new devices such as radar for battlefield surveillance and electronic items for night operations.

BUT more than anything else, what has been added is the absolute necessity for continuing individual study of the changing military scene. The basic trainee, the inductee, the Reserve Forces Act trainee—all who leave the Army after a short tour of duty—must be motivated to continue their pursuit of military knowledge if they are to retain military effectiveness.

It is here—in training its reserves of manpower — that the Army encounters its great challenge. It is here that the Noncommissioned Officer faces a real problem. And it is here that the rest of the Army faces the responsibility of producing Noncommissioned Officers of the caliber so urgently needed.

Essential Qualities

WHAT qualities specifically should Noncommissioned Officers have to do their jobs effectively?

In order to instill discipline and motivate trainees to their maximum effort, certain personal qualities are indispensable. The term "integrity" covers many of these.

The Noncommissioned Officer must demonstrate, in his daily life with trainees, his dedication to the Army's mission. He must be honest, fair, and of impeccable military bearing and appearance. Only then will he instill the confidence and respect which are the foundations upon which leadership rests.

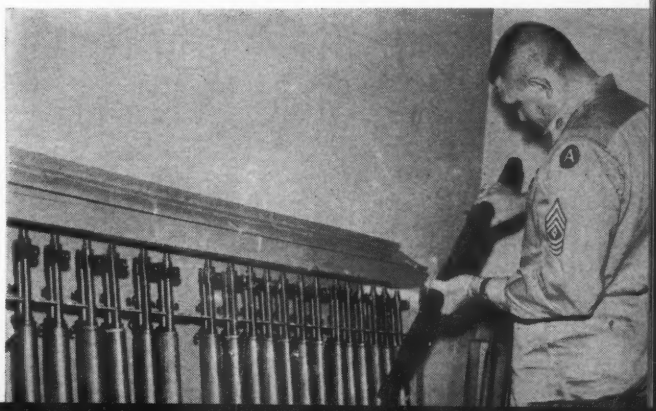
In the matter of discipline, of obedience to military orders, the objective is to get the trainee to *want* what the Noncommissioned Officer wants, not merely to *do* what the Noncommissioned Officer wants.

Today's Challenge

"America counts upon men and women who are firm in faith, stout in heart, and unwavering in zeal. People are always asking: 'What will the future bring?' It is far better to ask: 'What are we bringing to the future?' Are we bringing doubt and despair, or faith and courage? Are we bringing indecision and weakness, or strength and determination? Are we bringing a desire to evade individual responsibility and live the easy life, or the willingness to face up to life's hard reality and sacrifice and serve without measure? These are questions which you, as graduates, must answer after you have searched your souls and sought the guidance of your God-given consciences."

Secretary of Army Wilber M. Brucker at Dickinson College, Carlisle, Pennsylvania, 5 June 1960.

If we expect our soldiers to master an expanding field of military skills, to continue their study of military developments throughout their years of capable military service, we must do more than demand blind obedience. The trainee must understand the importance of what



Key element in training soldiers for the Army of today and tomorrow remains ever the Noncommissioned Officer.

"Today as in the past, optimum utilization of Army manpower calls for a tailored program applied with consummate skill."

he is doing and what he is being asked to do.

The trainee must comprehend that this matter has a dual importance—vital both to his individual survival and national existence.

This means, then, that the Noncommissioned Officer must be something of an expert in human relations. Through his daily contacts with subordinates he must try to instill the pressing importance for every soldier to keep physically fit and professionally adept. And here again, by personal precept the Noncommissioned Officer must demonstrate his own conviction that what he asks is necessary.

It follows without saying that the Noncommissioned Officer must have a rather impressive store of military knowledge. He must be an expert in his own specialty, and he should be able to explain the relations of his specialty to any other field of military activity.

Developing NCO Attributes

WE ARE asking quite a bit of a Noncommissioned Officer.

Being realistic, it is not an overstatement to say that men possess-

"On the nuclear battlefield of the future with its wide dispersion, utter devastation and disrupted communications, discipline certainly is an absolute necessity."

ing all of these attributes would also aspire to positions of leadership in almost any area of civilian endeavor they selected. But if we cannot expect all Noncommissioned Officers to fill completely the role we have defined, there is certainly no reason why we should not try to make every Noncommissioned Officer approximate the desired stature.

From the outset, let us admit that good Noncommissioned Officers weren't just born that way; nor did they acquire their skills and abilities all at one time or all in one place. Development of good Noncommissioned Officers is a difficult and time-consuming process. It requires three things:

- general education;
- on-the-job and Army school training; and
- favorable command environment in which to exercise and develop leadership skills.

The requirement for an education is self-evident in today's Army where directives are intricate, regulations are complex, and technical manuals are almost cryptic. Men using new weapons systems, new supply systems, new transportation systems and new communications systems need thorough backgrounds in management, accounting, physics and electronics. The Noncommissioned Officer needs a good general education in order to absorb the specialized knowledge required for leadership in these fields.

The service training needed to transform a potential Noncommissioned Officer into an actual enlisted leader is of two general types. First, he needs technical training that is best obtained by alternating between branch or service operated schools, and on-the-job experience in the field with organized units. Second, he needs leadership training, and this is best obtained in courses at Noncommissioned Officer Academies. Hours of instruction are needed in Principles of Leadership and Techniques of Leadership, and these classroom hours must be followed by supervised on-the-job performance.

On the NCO rests the grave responsibility for training men in old as well as new skills demanded by modern warfare.

The third element required for the development of a good Noncommissioned Officer is a favorable command environment. This means an opportunity for the enlisted leader actually to assume his proper responsibilities in the unit to which he is assigned. This environment is created, unit by unit, by successive commanding officers.

If the command environment is too strict and the supervision from on high is too detailed, the Noncommissioned Officer is stifled. He never learns to accept responsibility

because he is given none. He never exercises his leadership because he has no autonomy. Advancement is meaningless except in terms of pay. He regresses every month that he spends in that command.

On the other hand, if the command environment is too loose and he receives no supervision, the Noncommissioned Officer and his subordinates wander aimlessly, dissipating their effectiveness. Laxness grows quickly to extreme proportions, and members face problems of readjustment when they return to better managed units.

Personal and Unit Relationships

WITHIN any command, the development of good Noncommissioned Officers requires an enlightened, happy medium between these two extremes. It is therefore incumbent upon all commanders to attain that medium in order to accomplish their mission effectively and to train their enlisted leaders.

Development of enlisted leaders demands long and deliberate effort —by the man himself, by his superiors, by his arm or service, and by the Army as a whole. Justification for this long, hard effort is to be found in the achievements of all good Noncommissioned Officers.

Achievements fall generally into two main categories. The first grouping is in the category of human relations. The Noncommissioned Officers achievements in this field are many and varied. He is responsible, at first hand, for the reception and integration of replacements in his unit. He personally selects specific men for specific jobs. He actually conducts the training within his unit, and his ability as a teacher is the only factor of greater weight than the unit training schedule.

He is charged with initiating necessary correction and discipline in the maintenance of unit standards. And he is the first and most effective counselor of every soldier with every sort of problem.

More than any other individual, he creates high morale and *esprit-de-corps* within his unit. He is extremely important in developing junior leaders who will become his successors.

THE second category of achievement is that of unit proficiency. On the job-site or on the battlefield, the Noncommissioned Officer is the controlling agency who determines

Neither nuclear weapons nor changing concepts of war will eliminate need for basic skill of rifle marksmanship.

"If we expect our soldiers to master an expanding field of military skills, the trainee must understand the importance of what he is doing and is being asked to do."

the quality and quantity of unit performance. His personal standards are the true performance standards of the unit.

No amount of lectures or directives can supplant the conscientious Noncommissioned Officer as the real agent of supply economy. In these days of direct exchange, self-service, consumer funding, command management, and high speed supply, the Noncommissioned Officer has become more and more the keeper of the purse strings. And rising costs of all kinds of materiel have made this a greater responsibility than ever before.

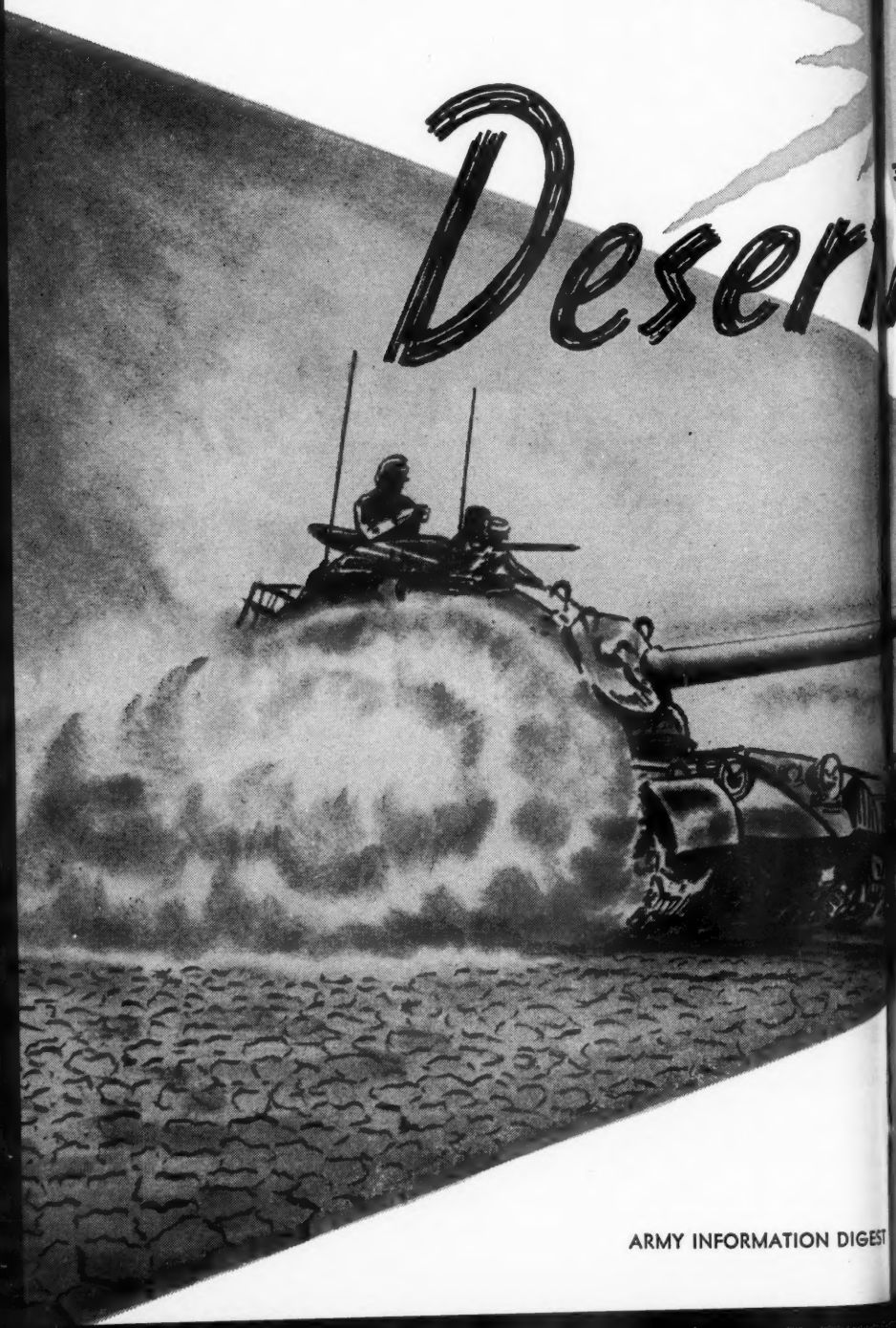
Not the least of the Noncommissioned Officer's responsibilities is that of constant watchfulness over the safety of his men. He staves off countless accidents by constantly reinspecting his equipment, examining work practices for unsafe acts, cautioning his men, and vetoing every activity that unnecessarily exposes his subordinates or his equipment to danger.

One Army Unity

PERHAPS the most important achievement of a Noncommissioned Officer is the creation of a close-knit team, a single force, out of the varied personalities under his command. From these close-knit unit teams come both the career soldier and the reservist who make the term "One Army" meaningful. They are the men who are aware that soldiering is an unending process of education; that experience in one, or two or three, of yesteryear's wars is only a step and not a platform; that national security is not a six-month or two-year reenlistment program. In short, the competent Noncommissioned Officer of today's One Army is acutely aware that national security is a lifetime obligation which is fulfilled only by a lifetime of dedicated service.

In a crucible of sand, sun and searing heat, men of mettle wield armored firepower at the Army's

Deser



Training Center

Brigadier General
John Barclay Sullivan

CENTERED in the vast Mojave Desert at Camp Irwin, California, the U. S. Army Armor and Desert Training Center spreads over 1,000 square miles of sun-baked desert—an expanse of sand and sagebrush only slightly smaller than Rhode Island. The nearest town, Barstow, is 37 miles away, and 37 miles in the other direction is the south end of Death Valley. Only one road enters the reservation, and there are only 1,100 regularly assigned personnel, including the 5th Medium Tank Battalion, 40th Armor.

BRIGADIER GENERAL JOHN BARCLAY SULLIVAN is Commanding General, U. S. Army Armor and Desert Training Center, Camp Irwin, California.

One of the Tank Crew Proficiency courses reveals rough, rugged nature of the terrain and the broad expanse that make Camp Irwin a "Garden of Eden for tankers."

Although the Center is impressive neither in location nor troop strength, it is ideally suited to its purpose. Secretary of the Army Wilber M. Brucker has called it "one of the finest tank areas and training centers in the world—ideal for maneuvers and training."

Here a tank unit can follow a logical tactical course and, without ever leaving the reservation, travel 105 miles, firing the 90mm gun the entire way. At Camp Irwin a tank battalion can attack deployed on line; a unit can go from a single column mountain pass to a flat dry lake bed in a matter of minutes, passing through some of the worst and best armor terrain on the way.

Battalion and company commanders have called the Center "the finest area in the world for an armor commander." The only complaint by platoon leaders is that the reservation is so large, it is difficult to run a space-restricted platoon problem. Thus the Center is perhaps the only armor post in the world which can be criticized for having *too much* fire and maneuver room.

For troops arriving for training from other, relatively cramped posts, Camp Irwin seems very much like a limitless sand-colored Garden of Eden for tankers. Even so, most inexperienced tankers regard the desert as an enemy, something entirely different from anything they have ever tried. Yet it is and it isn't—and the difference depends on training.

Training Task

EARLY in World War II, Major General George S. Patton, Jr., then commanding the Desert Training Center, wrote, "Desert operations involve no change in the fundamental principles of tactics . . . They do involve certain new techniques." It is the mission of the Armor and Desert Training Center to develop and teach those techniques, and in 1959, some 10,000 active Army, Reserve and National Guard personnel were so trained. During 1960, 11,000 soldiers in 28 battalion-size units will train at the Center. Each soldier stationed at Camp Irwin thus trains annually, on the average, ten other soldiers.

To train 11,000 troops with 1,100 may seem a formidable task, particularly when considering the logistical and administrative support required for each training battalion. Yet this is not quite so difficult as it seems. Camp Irwin gives little or no classroom instruction; instead, training is presented in the field. Instructors are drawn from the units and supervised by experienced personnel.

To further assist each unit instructor, Camp Irwin has developed a 102-page subject schedule, representing a complete and comprehensive outline of techniques of desert warfare. Some of these techniques were developed at the Desert Training Center in World War II, and others have been devised, tested and proved sound in the years since the war.

CAMP IRWIN was established 18 months prior to World War II as the Mojave Anti-Aircraft Range (MAAR), designed specifically for antiaircraft artillery units. In 1942 the name was changed to Camp Irwin, honoring Major General George L. Irwin, a World War I Field Artillery commander. The post operated for four years, then closed in 1944.

The camp opened again in 1951 with the training emphasis changed from artillery to armor, although AAA units still train at Camp Irwin each year. Since then, this post has been in constant operation, and each year increasing numbers of troops have reported for training. Most of these troops undergo standard desert training, if it can be called standard. The subjects are not unique, but the techniques are.

Desert Operations

CAMOUFLAGE in desert operations takes on considerably more importance than it might in other areas. To the untrained tanker, it probably appears next to impossible to hide a tank in the desert. In reality, it's amazingly simple—once you learn the techniques. A little mud or paint and a couple of desert scrub bushes can make a tank blend so well with the terrain that it is virtually impossible to distinguish from any distance. Day

Though they stand out against the powdery sand while massed on a parade field, tanks could be camouflaged in less than half an hour, using available materials.

and night desert navigation, seemingly more difficult than camouflage, takes on a new and simple meaning with the grasping of a few techniques—and a little practical training in dead reckoning.

Some subjects taught at the Center are not quite so easy. These require constant practice until it becomes a natural reflex to compensate for the desert's individuality. For instance, range estimation and target identification take on a new and, to some, foreboding aspect. Depending on the time of year, position of the sun and reflection from the sand, objects appear to be either much closer or considerably farther away than they actually are.

Again, depending on the same factors, a tank can appear to be anything from a telephone pole to a concrete house, but seldom, at a distance, is it a tank. However, it is still not impossible to be accurate in range and identification if the tanker knows what to do, when and how. It is all a matter of training.

Weather at Work

ANOTHER "technique" basic to desert operations is a knowledge of weather factors. Camp Irwin doesn't teach the subject; experience does.

The imagined desert is regarded as a perpetually hot, sunny, quiet place. The real desert is not. At Camp Irwin it can be burning hot at noon and freezing at midnight—and in some months it can be freezing cold at noon. The highest temperature recorded was 139°F, but that was some years ago and has not been repeated recently. Now it is only 125 degrees. The lowest temperatures break at 25 to 28 degrees.

The desert is almost always sunny, but you are not always able to tell it. Sand storms that whip up without warning can reduce vision to 100 yards, if you can open your eyes at all, and can blot out the

5th Medium Tank Battalion, largest single unit at the post, rounds a corner during mounted review at the Desert Training Center, Camp Irwin, California.

sun so that it appears to be night at mid-day. Winds of hurricane proportion are not unusual, particularly in the summer when the wind starts as soon as the sun sets.

Still, the greatest danger to the individual is the sun and the heat. Troops from the cooler, greener areas do not realize, and often will not believe, that there is a constant danger of sun stroke, heat stroke and heat exhaustion. Those who must do hard work during the hot periods must do so slowly, fortified with a good quantity of salt in their food. The necessity to drink frequent small amounts of water is one of the hardest things to teach soldiers used to the rigid one-canteen-a-day theory of times past.

If, however, all these techniques were learned by the soldiers in training here, something vital to an armor unit would still be missing. Proper qualification of tank and AAA gunners on adequate range facilities is a vitally important part of Camp Irwin's mission, and again Camp Irwin is ideally suited for it.

Surrounding the main post are 19 firing ranges or areas and 12 no-fire areas, so arranged that no one unduly interferes with any other. Included in the total are five fire and maneuver areas where theoretical problems submitted from other stations can be worked out on the ground using live ammunition, extreme dispersion if desired, with room to the front and flanks to allow for a series of maneuvers.

Churning up the desert sand, tank swings around a field of boulders that serves as anti-armor feature at Training Center.

These areas offer a variety of terrain problems. The desert, contrary to popular belief, is not flat; deep arroyos can serve quite effectively as rivers, groups of huge

A tank flamethrower cuts loose on one of the 19 ranges where thousands will learn technique in 1960 training season.

Mud and desert bushes, all readily available, are used to camouflage tank. Tank at left is shown partially camouflaged at right.

boulders as thick forests. Combinations of desert terrain can serve as nearly any other type terrain, with the possible exception of swamps.

Tank gunner qualification ranges are laid out so that all can be fired simultaneously and, by moving down the road, a unit can fire each table in its proper order without undue back-tracking. These "firing line" ranges lead to the two Tank Crew Proficiency Courses, which

M-60 on the Way

are known by training units as "the most taxing in the world."

Running through a valley, the TCPC ranges afford the unit commander opportunity to test the ability and capability of each tank crew. The courses require speed, a thorough knowledge of armament and quick decisions based on realistic thinking. They are not easy courses, but then they are not intended to be.

Immediately past these courses is the largest of the five training areas, in which a tank battalion can run a live fire exercise on line for 12 miles. Camp Irwin is undoubtedly one of the very few Army posts today that can conduct such an exercise without the nagging fear that an HE round might land in someone's melon patch.

Night Combat Tactics

DURING the eight-month training season, all of Camp Irwin's ranges are in nearly constant use. Firing continues at night, but usually on a modified basis. All training areas are used, either for fire and maneuver problems or bivouacs.

Individual training goes on at night almost as vigorously as during the day. When the moon is full, the desert is literally as bright as day, a fact which new units find hard to accept. However, when there is no moon, the desert is immersed in pitch blackness, during which it is nearly impossible to move with any certainty of direction or distance.

It is during the black and semi-black periods that commanders on unit tactical maneuvers have to keep especially close check on their

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PRODUCTION models of the new main battle tank M-60 have begun rolling off the assembly line at the Chrysler Delaware Defense Plant at Newark, Delaware, since the first tank was formally accepted in April by Assistant Secretary of Army Courtney Johnson.

Wide use of aluminum has resulted in heavier armor in more vulnerable areas while reducing combat weight load to 50 tons, which is 3,000 pounds below the combat weight of current M-48 models. The tank has a completely new 750-horsepower Continental diesel engine that provides a 250-mile operating range.

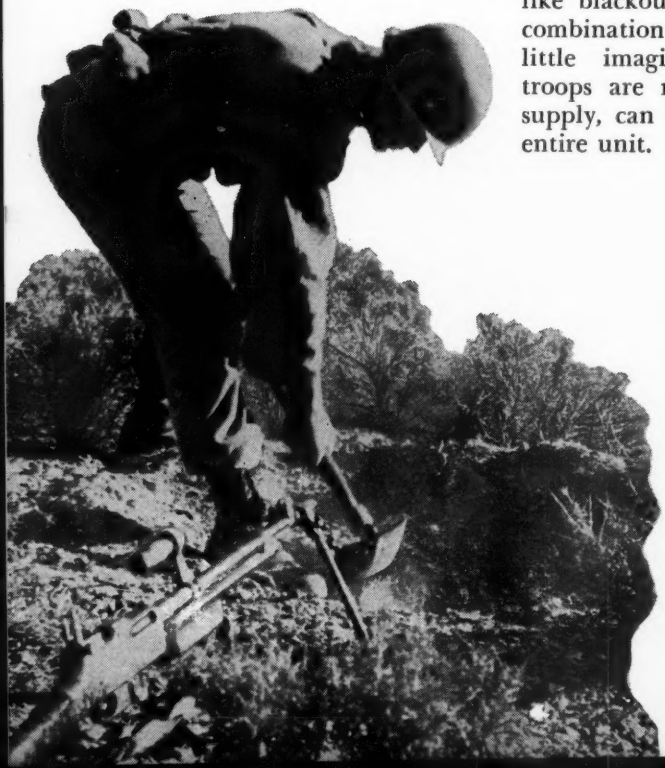
Its outstanding features include increased ground clearance, 28-inch wide treads, ability to climb 60 percent grades or three-foot walls, cross-country speed of 15 miles an hour and average road march speed of 32 miles an hour. It can ford streams of four feet depth.

Armed with a 105mm gun teamed with simplified fire control system, the tank is capable of defeating all armored vehicles known to exist today. It also is armed with a 7.62mm machine gun on the main gun cradle and a new 50-caliber machine gun in the turret. The M-60 is produced by Chrysler under direction of the Ordnance Tank Automotive Command, Detroit, Michigan.

CONTRACTS for additional M60 tanks and also for the Army's new M88 tank recovery vehicle have been awarded. They call for about $60,000,000 to Chrysler Corporation, Detroit, for 720 of the new tanks; and $20,000,000 to Bowen-McLaughlin-York, Inc., of York, Pennsylvania, for 212 recovery vehicles. Initial tank deliveries are scheduled for November. The recovery vehicle, scheduled for initial delivery in December, is a new armored unit capable of recovering damaged or disabled medium and heavy tanks on the battlefield.

Moving soldiers like these of 4th Infantry Division can be seen from about six miles, but dug in they are nearly impossible for ground observer to detect.

While best camouflage for individual soldier is foxhole behind bush, rocky soil makes digging one a real problem.



sentries. There is on the desert, as on the sea, a phosphorescent phenomenon which causes small spots of bluish light to appear on the desert floor. To the inexperienced viewer these spots appear almost exactly like blackout vehicle lights. The combination of this effect and a little imagination, which most troops are more than willing to supply, can effectively "spook" an entire unit.

Even experienced viewers have difficulty in convincing themselves that the lights aren't vehicles. These lights are just one effect which the desert supplies solely, it seems, to harass the ill-trained soldier.

Exercise Mesquite Dune

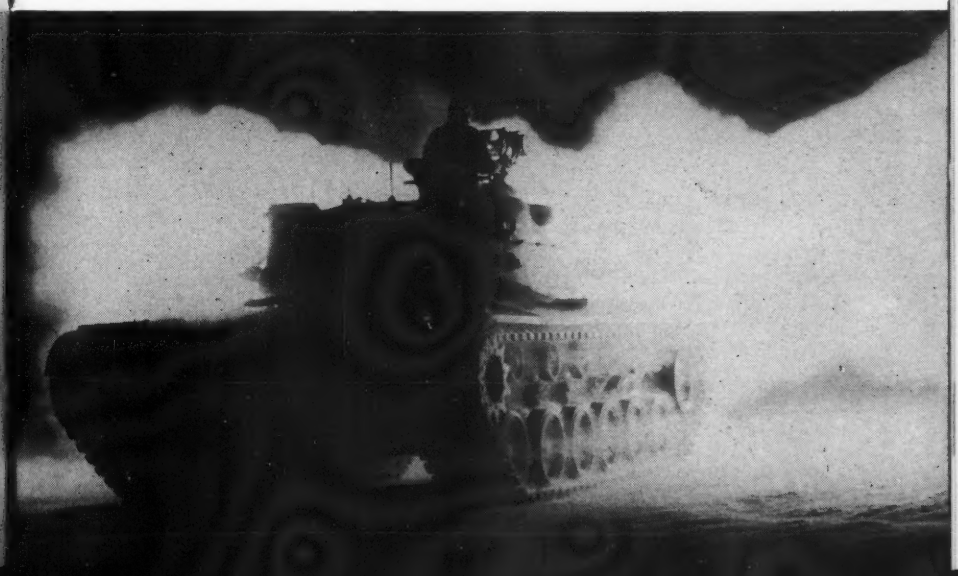
DURING March 1960, troops from five states converged on Camp Irwin for Exercise Mesquite Dune, a test of armor's "reconnaissance in depth" theory. The six-day exercise required considerable familiarity with desert techniques. It tested the adequacy of unit and individual training in all phases of an operation, including chemical attack, as they might be conceived for desert operations elsewhere. The Armor and Desert Training Center is the only post where such a training test could be conducted.

Whether participating in day-to-day training or the week-long exercise, troopers who complete the "course" at the Center will know they have accomplished no mean feat. There is no simulated training at Camp Irwin, nor could simulated training at some other post serve as a substitute. The desert and its heat either are or are not, and at Camp Irwin they most certainly are.

Training here is designed to be rigorous and realistic. For a soldier to ignore his personal health is sheer stupidity, as the desert can kill the strongest man, and will if given the opportunity. Training is harsh and demanding; it allows ample time for personal necessities, but little for personal luxuries.

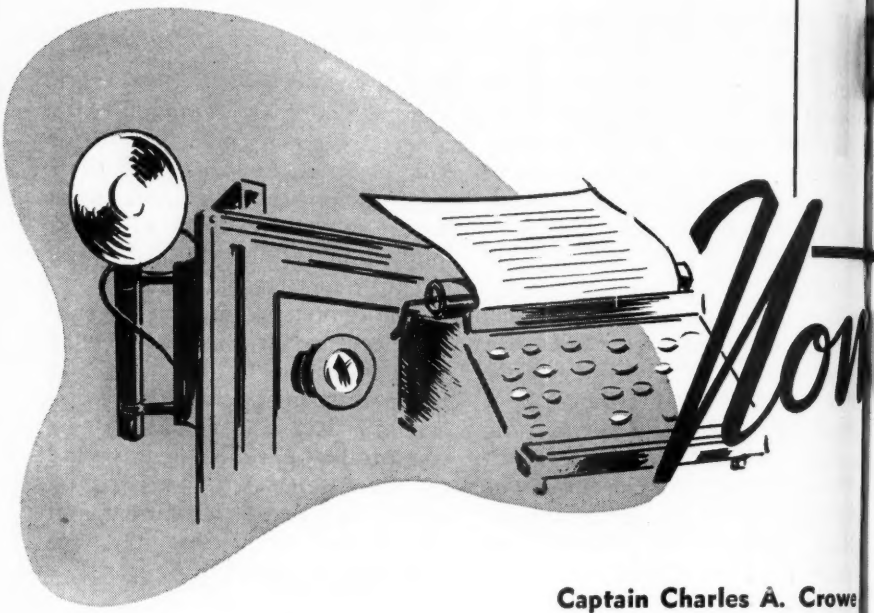
The Center operates on the simple theory that it is infinitely better for a soldier to be hot, tired and fairly smart in the ways of the desert now than it is for him to be comfortable now and terribly dead on the desert later. There is no substitute for realistic training, and the Armor and Desert Training Center exists only to give it.

A gun blast lights up the night as training continues on a 24-hour basis. When moon is full, desert is bright as day but on moonless night it is pitch dark.



Typewriter and camera are teamed

to tell the Army story graphically . . .



Captain Charles A. Crowe

THE PROBLEM: Design a course of instruction to prepare Army information personnel and student photographers for the job of working together in the field.

The solution: Cooperative training exercises involving students from the U. S. Army Information School at Fort Slocum, New York, and student photographers from the U. S. Army Signal Corps School at Fort Monmouth, New Jersey.

First such joint training effort brought together photographers and 171 information specialists at Fort Slocum in November 1959. Purpose of the exercise was threefold: (1) To allow student information specialists, acting as directors, and student photographers, acting as technical specialists, to work together under field conditions. (2) To sum up in a practical exercise all of the teaching points brought out during the photojournalism phase of instruction at Army Information School. (3) To provide

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CAPTAIN CHARLES A. CROWE, Artillery, is an instructor in the Applied Journalism Department, U. S. Army Information School, Fort Slocum, New York.

PICTURE THIS:

an oportunity for students to plan an actual picture story.

Following a preliminary briefing on the purpose of the exercise and the relationship of the information specialist to the photographer, students were organized into four and five-man groups with one photographer per group. Each group then proceeded to plan a "shooting script" for a six-picture series—to be released to the hometown newspaper of a selected group member, who would serve as the subject of

Capt. William Duncan, Army Information School instructor, briefs M/Sgt James R. Newton, information specialist, and Pvt. James J. Luczak, student photographer.

the planned pictorial feature.

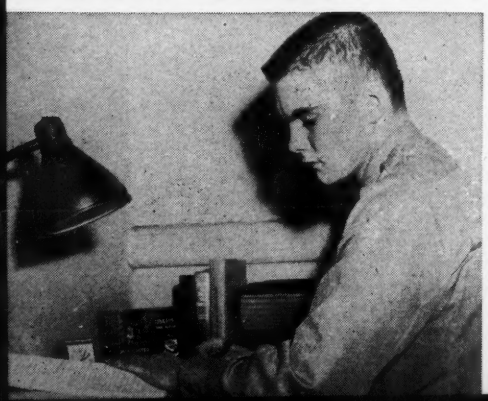
Following the planning phase, the groups were released to begin actual picture-taking. There was no need for students to work under "assumed conditions" since the theme of each story was to be a photographic representation of the "hometown boy" as a student at the U. S. Army Information School. All the props were real and available on the 88-acre island post.

Students were cautioned to limit their efforts to pictures which they thought would be acceptable to a newspaper editor. The basic limitation was, of course, the amount of imagination and initiative exhibited by each group.

Each student acted as director for one or more of the shots in the series. As one student observed: "This exercise really brought home the importance of teamwork between photographer and reporter on a photojournalism assignment."

Student photographers processed the exposed film upon their return to Fort Monmouth. Contact prints were sent to Fort Slocum for analysis by photojournalism instructors. Evaluation of the photos was based on the overall picture-story value of the series, plus composition, reproduction quality, story continuity, format variety and cropping of individual shots.

A critique of the exercise was



A Sample Project

TYPICAL of the results of the exercise is this six-picture sequence taken by one group which selected Private James A. Donahue as the subject of a picture-story to be sent to his home town newspaper. At left, Donahue discusses progress with his adviser, Maj. Edward S. Wells, Jr. Left below, he studies in preparation for next day's assignments. Below, he practices fundamentals learned in the School's Radio-TV Department

presented at Fort Monmouth by an instructor from the Applied Journalism Department at USARIS. Meanwhile, back at Fort Slocum, a similar critique was presented to student information specialists.

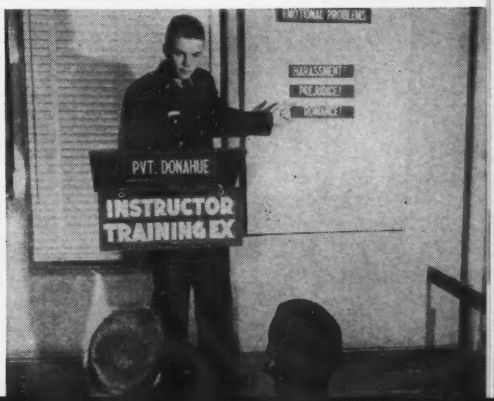
Results of the first joint training exercise were even better than had been anticipated—despite the adverse effects of a drizzling rain throughout the day. Colonel William F. Jackson, Commandant of the school, stated: "Joint training by students of the Signal and Information schools is a primary step in achieving successful results in the field from the Information-Signal Photo team."

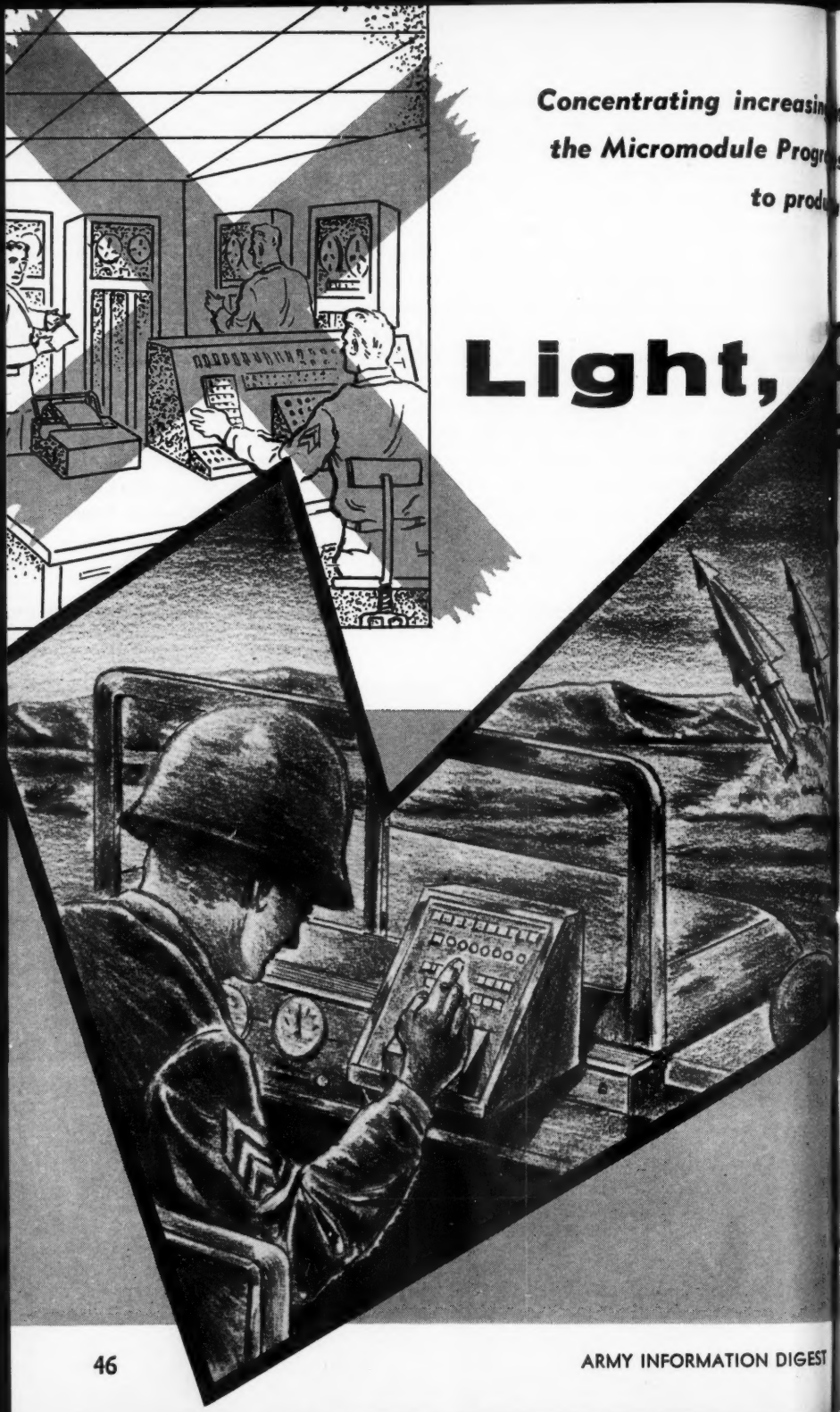
Commenting on such teamwork, Brig. Gen. Charles M. Baer, Commandant of the Signal Corps School, said: "These joint exercises are of much value to the students, and I know from experience that they will have a significant influence on effective relationship between Signal photographers and information specialists throughout the Army."

As a result of the initial effort, officer classes, as well as enlisted specialist classes at USARIS, now participate in similar cooperative training exercises—all part of the eight-week course of instruction aimed at training selected officers, enlisted personnel and civilian employees of the Armed Forces for Army information assignments.

by taping a home-town interview with classmate Pvt. Roland C. Wright.

The reporter-photographer team further illustrated how Pvt. Donahue spends some of his free time at the School. Below, mail call brings a smile as he receives a welcome letter from home. Right, he relaxes at the billiard table in the game room before going to dinner. Right below, Pvt. Donahue, once more back in class, takes to the platform to give a troop information talk as part of his training in Public Speaking.





Concentrating increasing

the Micromodule Progr

to produ

Light,

easin plex components in less space,
Progr s electronic "building blocks"
produ ipment that is

Compact, Reliable

Brigadier General J. C. Monahan

SO VASTLY has the U. S. Army's requirement for electronics increased in the past two decades that, if present functions were to be accomplished with World War II techniques, it would require all of the Army's available transport merely to move and supply the equipment.

Since the Army of the future will require ever increasing amounts of electronics, the importance of measures designed to decrease size and weight cannot be overestimated. Desirably, a size reduction of ten-to-one is required without increase of manufacturing and maintenance costs. Such a goal can be achieved by exploiting techniques of microminiaturization.

BRIGADIER GENERAL J. C. MONAHAN is Chief, Research and Development Division, Office of the Chief Signal Officer, Department of the Army.

Already the manufacture of highly reliable and highly standardized electronic equipment one-tenth the size of existing transistorized equipment is underway in a technical revolution that is now beginning to sweep the electronics industry.

This revolution is coming about for the simplest of reasons—the limitation of the human hand in the manipulation of small parts and tools. Most of the parts required in modern electronic equipment are manufacturable in sizes too small to be assembled by hand with rapidity and sureness. The answer to this problem is found in the recently developed micromodule system.

System Characteristics

ESSENTIALLY, the micromodule system is based on the use of extremely thin wafers of electronic

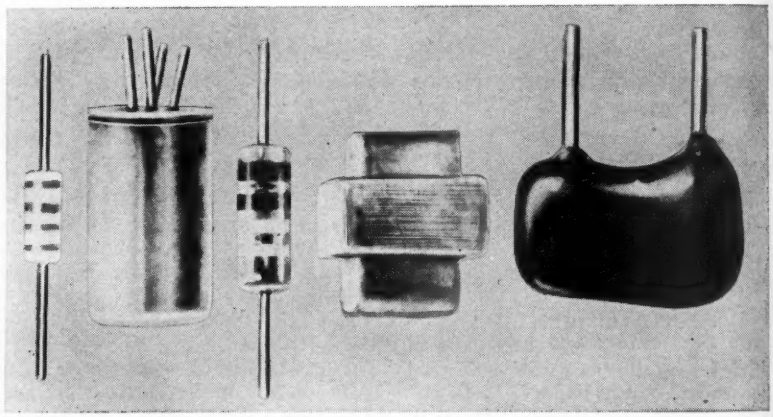
components connected in building block fashion to make miniature cubes of functional circuits. Each wafer is either an integral component or supports one or more micro size components on the flat surfaces. The wafers are usually 0.3″ × 0.3″ × 0.01″ but greater thickness is easily accommodated.

Interconnection between the parts is accomplished by 12 riser wires that are soldered into notches. Each wafer has a thirteenth notch for indexing. This method, it has been found, is the most adaptable developed by industry.

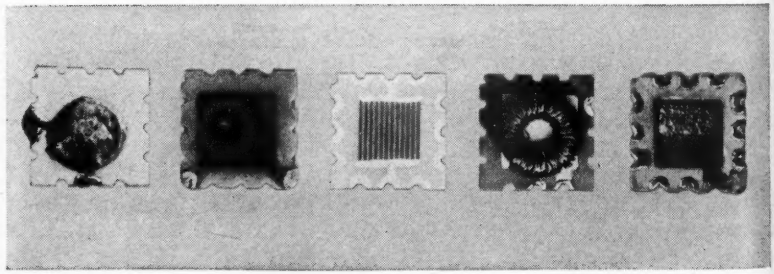
In the assembly of the microelements to form a micromodule, a 0.01″ space is allowed between each element to provide electrical decoupling and an allowance for joints and tolerances. Each transistor and capacitor normally requires a separate wafer but multiple diodes and resistors may be incorporated in single wafers.

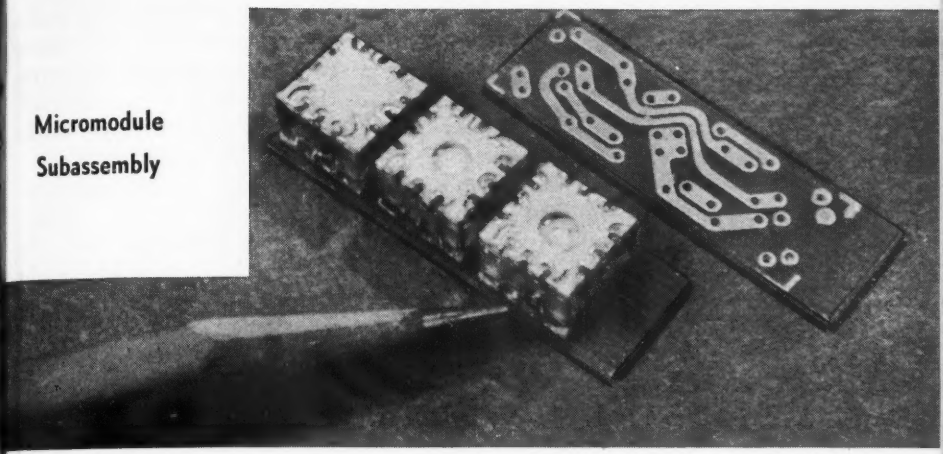
Following assembly and after completing all of the internal connections, the modules may be sealed by molding or encapsulating to form a solid body. This provides structural strength, easy handling, environmental protection.

Encapsulation, however, prevents repair within the module—which would be a very difficult problem in any case. Since cost indications are so low, it is probable that throw-away maintenance will be commonly practiced.



Conventional Components vs. Micro Elements





Micromodule Subassembly

"The system is based on use of very thin wafers of electronic components connected in building block fashion to make miniature cubes of functional circuits."

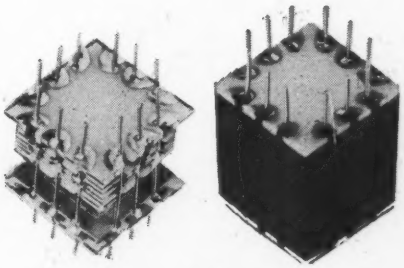
Advantages Foreseen

PERFECTION of the micromodule concept will assist the Army in meeting its modern needs for smaller and lighter communications and electronic equipment by providing industry with a radically new production capability for construction of electronic equipment.

In the field of Army missiles especially, the micromodule program offers distinct advantages—reduced problems of logistics, improved mobility of electronic systems and equipment, reduction of maintenance and cost. Smaller and lighter electronics modules will permit higher payloads, increased ranges or smaller missiles. These factors are important in continually advancing the Army's capability to move and control its forces and weapons rapidly in its deterrent or defense role.

The micromodule program is primarily a production engineering measure rather than a research and development program. Only a small amount of development is required to adapt available component techniques. Major emphasis is placed on achieving a production system that will turn out quality parts so that reliability objectives will be assured.

The program has as a goal a 50 percent improvement in reliability. This is to be achieved largely by prevention of errors in hand assembly, which, at the present time, is one of the largest causes of unreliability. Additional uniformity



Modules may be sealed by molding or encapsulating. Left unit is assembled item; right, it has been enclosed in capsule.

in component fabrication will also assist in reaching the goal.

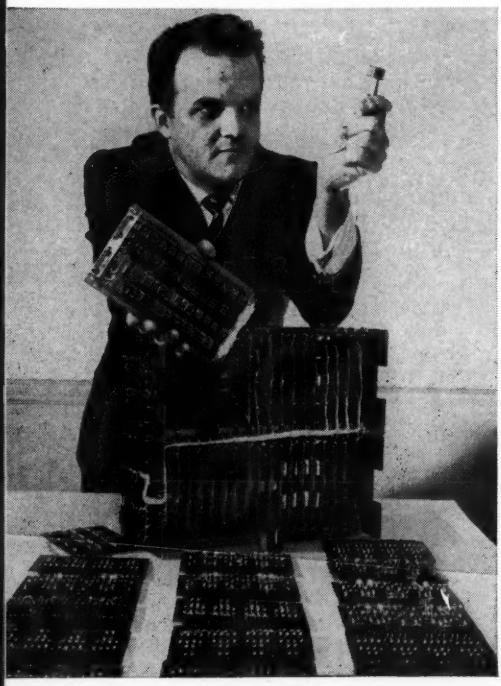
Joint Endeavor

THE micromodule program was originated jointly in April 1958 by the U. S. Army Signal Research and Development Laboratory and the Radio Corporation of America. Both organizations set out to improve radically the level of miniaturization using only proven component techniques currently available. The program, begun under a two-year contract, was later extended for another year and increased in scope. A fourth year is anticipated before the production facility is available.

The first year was directed toward development of the basic module element configuration and the prototype production of various parts. The second and current year is being devoted to further component development, qualification testing, and preliminary design on two demonstration systems.

At present about half the total number of microelements are already available and are undergoing comprehensive performance tests and evaluations. In all, the program calls for nearly 5 million unit hours of life testing.

Beginning this year and through the third year of the program, two equipments will be converted to micromodule form. The first and simpler is the AN/PRC-34 Helmet Radio. Slower progress is anticipated on the COMPAC, a two-

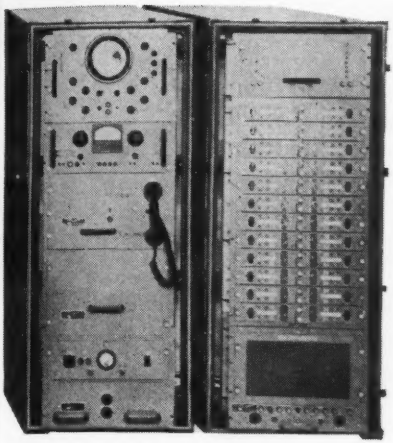


Ultra Compact Circuit

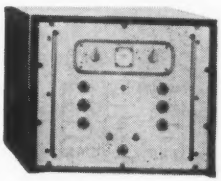
THE guidance system of the new "Swallow" reconnaissance drone will utilize a new, peanut-sized sub-module, said to be the most compact circuit unit ever designed for standard electronic components. The module was announced recently by the Office of the Chief Signal Officer after it was developed by Republic Aviation Corporation, builder of the drone. The tiny modules each hold from 12 to 18 components, weigh only two grams, and are suitable for use in all-purpose digital computers.

In the navigational computer which is the heart of the central "nervous system" of the AN/USD-4 or Swallow, the units are arranged on modular "cards" at 44 to 50 per card, compared to existing use of only 8 to 10 modules per card. The new units also are uniform in size so they may be reproduced economically by automated techniques, and can be stacked with no wasted space.

MULTIPLEXER EQUIPMENTS



AN/TCC-13



AN/TCC-26

M-M Version

While transistorized equipment reduced size and weight of many items, micromodules will carry this reduction much further. Here the standard AN/TCC-13 at left, a 23-channel time-division multiplex, contrasts with transistorized version in middle, while at right is mockup of a proposed micromodule version demonstrating still greater reduction.

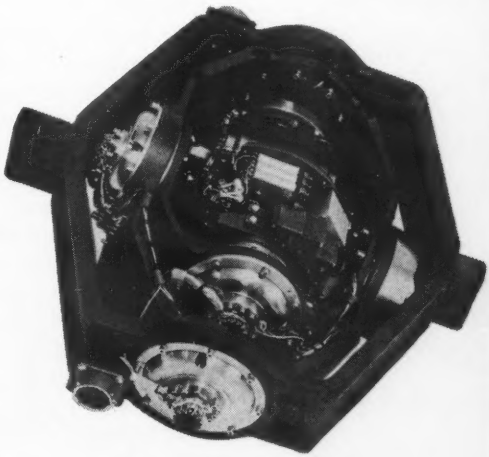
cubic-foot digital computer for ultra portable field use.

Microminiaturization capability has been proved in virtually all low power circuit functions—including RF, IF, audio, frequency control and a host of digital circuit functions. The practical limit is power dissipation. Initially, output stages—both audio and RF—will have to be of conventional transistorized construction. These as well as controls and relays can be easily integrated by designing to the $0.3'' \times 0.3''$ modular dimension.

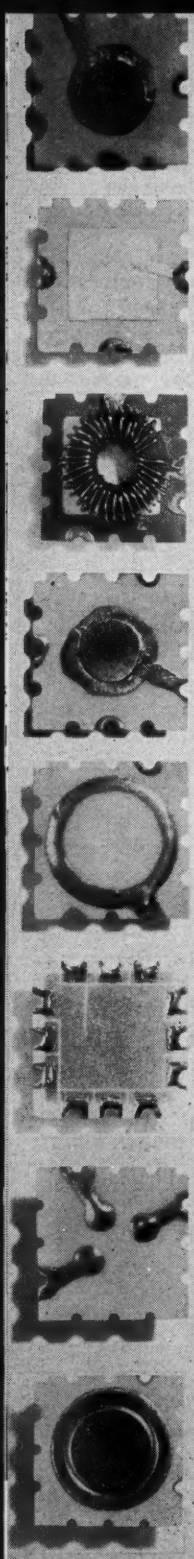
Scope of Program

BY its very nature, the micromodule program is necessarily very far-ranging and ambitious. The required volume-weight breakthrough just cannot be achieved by lesser efforts. For example, 40 separate component development programs are required in addition to the mechanized assembly phase.

Radio Corporation of America, as leader contractor, makes use of a large number of subcontractors—at least one from each facet of the industry. There are, for example,



Reduction in size and weight of this inertial guidance platform for jam-proof navigation was made possible by use of micromodules.



Individual microelements, each .01 inch thick, are assembled like building blocks to form tiny micromodules for use in electronic items.

two capacitor manufacturers, one crystal manufacturer, six diode manufacturers and two transistor manufacturers, among others.

A primary requirement of the program is that the entire process be available to any electronics manufacturer. Information is therefore being disseminated by wide distribution of reports and encouragement of visits. Fifteen finished micromodules have recently been placed on sale to be used in design of new equipment prototypes. Also, a special laboratory kit has been prepared for those development groups that want to fabricate micromodules different from those being offered for sale.

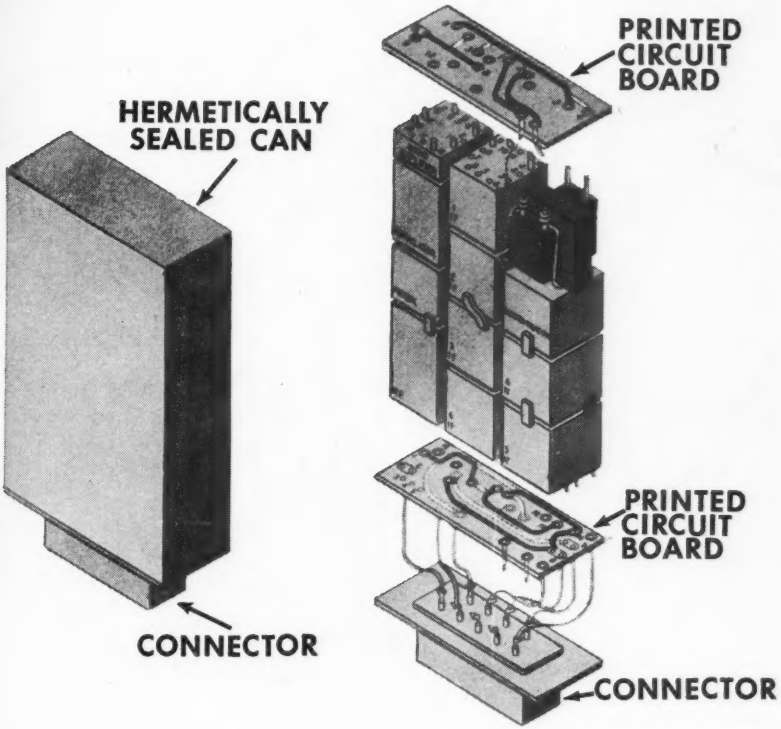
Micromodule technology is now reaching the stage where proposals for independent development of functional equipments are being given serious consideration. These first developments will possibly be only partial micromodule versions. Conventional subminiature tube and transistor construction integrated with micromodule construction will be permitted, depending entirely on the merits for the particular function.

It is expected that micromodules will have wide commercial application. Since the environmental conditions are much less severe and because large labor savings may be accomplished, the first commercial exploitation will possibly be in ultra portable radio and television receivers.

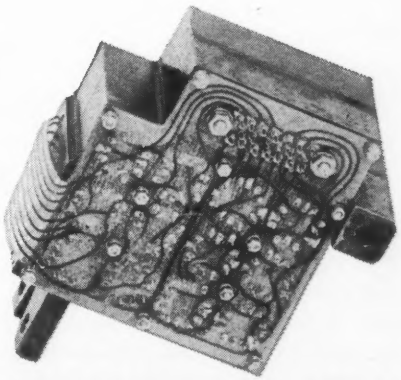
Micromodularization opens new vistas in the electronics field. In

AN/PRC-36 RECEIVER (Exploded View)

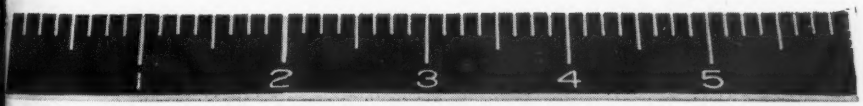
(Micromodule Version)

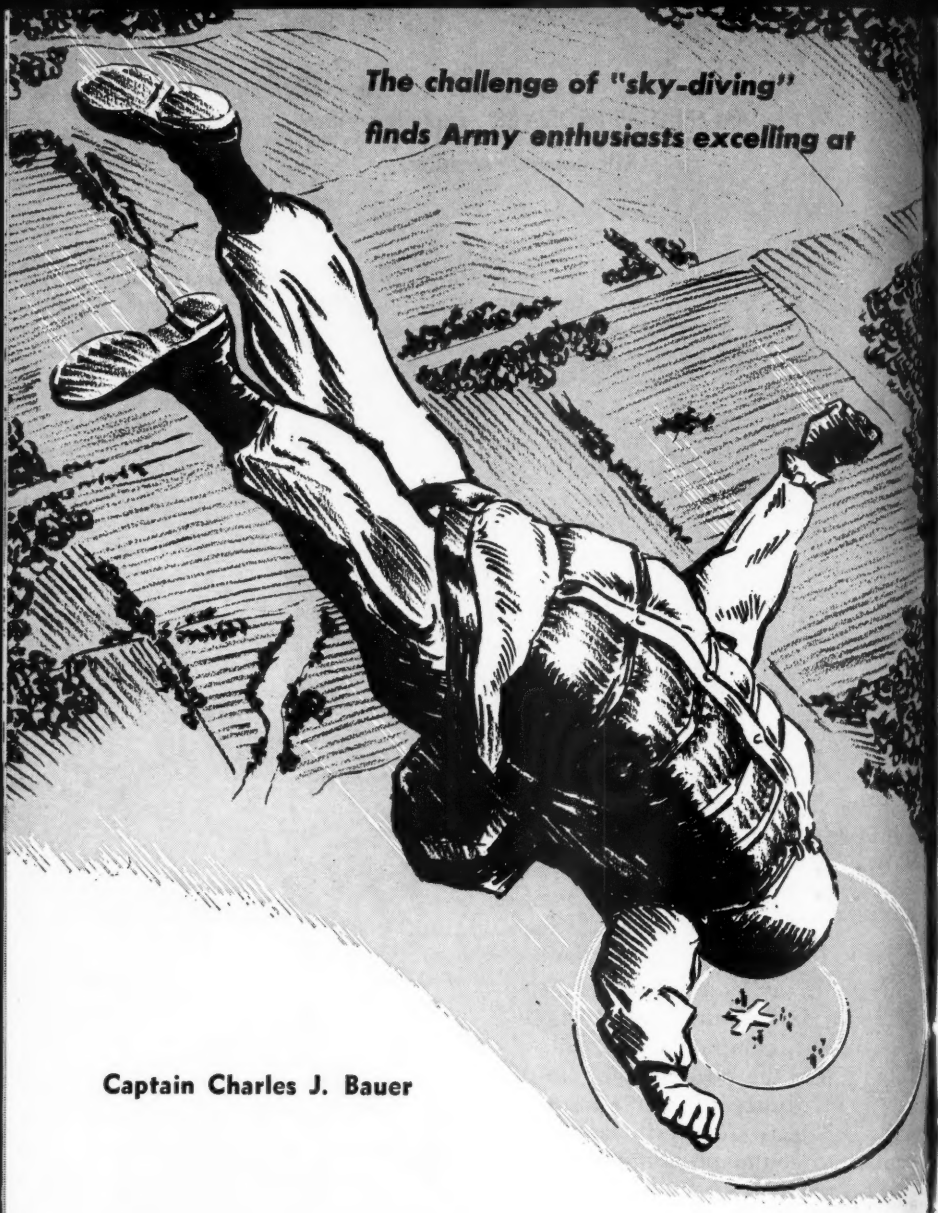


addition to saving critical weight and space in missiles, helmet radios, digital computers and the like, it offers the possibility of improved reliability of communications and electronic equipment so essential to command control, surveillance, and accuracy of fire on the battlefield.



When combined with printed circuits, assembled micromodules allow great reduction in size and weight of many present items.





Captain Charles J. Bauer

EVER SINCE April 1958 when the Department of the Army first authorized military personnel to participate in off-duty free-fall parachuting, the sport of "sky diving" has zoomed sky-high in popularity. First formally introduced into the United States following World War II, the sport has picked up momentum under Army auspices. Already 21 military parachute clubs have been formed at Army installations, and Army members have been among top winners in every regional and national competitive parachute meet during 1959.

Parachuting For Sport

A United States parachute team, composed entirely of Army members, participated in international competitions in Yugoslavia during 1959 to become the first American parachute club to beat the Soviets in a sport which is as popular in Russia as baseball is in the United States.

The 1960 World Parachute Competitions, to be held in Bulgaria this August, again finds the United States represented by an all-Army team selected by the Parachute Club of America in competitions held at Fort Bragg, North Carolina, in April.

Free Fall Descent

WHAT makes this sport so popular? No doubt the daring and challenge has attracted some, but the thrill-seeker is soon discouraged by the long period of preliminary training, practice and preparation required.

CAPTAIN CHARLES J. BAUER, General Staff, is on duty with G1 Section, Headquarters, United States Continental Army Command, Fort Monroe, Virginia.

Sky-diving is not the military parachutist's version of hot-rodding; in fact, conventional parachuting and sky-diving are worlds apart. Where the military parachutist normally exits an aircraft at about 1500 feet, the sky-diver jumps at altitudes ranging from 2500 to 20,000 feet. Where the military chutist uses static lines attached to the aircraft to trip his chute release, the sky-diver falls through space and, timed by instruments—a stop watch, altimeter or both—waits until he reaches an altitude of about 2200 feet, then pulls a rip cord to activate his parachute.

The long free-fall descent may cover a span of 60 seconds; to the novice this may seem an eternity but to the experienced sky-diver it is a thrilling period which is over all too soon.

Considerable practice is required to establish the basic stable body position. A slight motion of an arm or leg can result in radical changes in movement, turns, tumbles and spins; but, with proper training, man or woman (and a number of

As first all-Army team representing U. S. in international parachute competition, this group took part in Adriatic Parachuting Cup Meet last year in Yugoslavia.

women do jump with the best troopers, as witness Capt. Barbara Gray, Medical Service, who placed thirteenth in the above mentioned competitions at Fort Bragg) can learn to perform controlled turns, loops, somersaults and practically every maneuver aircraft can perform except power climbs. And a visit to Fort Bragg, North Carolina, the Army's unofficial sky-diving capital, would convince you that sky-divers are working on that too!

A second major difference between the sky diver and the military parachutist lies in the equipment. While both use a main and a reserve parachute, the sky diver's main chute is startling to behold. Replete with what appear to be large rips, tears and missing panels, these chutes have been deliberately modified, in accordance with strict Federal Aviation Agency regulations, by elimination of certain areas of the canopy to give the parachute a steerable capability.

These parachutes have two control lines which permit the jumper to turn the canopy left or right. With a built-in forward speed of from 5 to 10 miles per hour, this allows the jumper to select the exact area in which he is to land.

In competition, contestants attempt to land in the center of an X type target. A recent item from Tass, the Soviet news agency, claims a new world record for Moscow where the average distance from the target for three consecutive jumps was reported as 3.4 feet.

Airborne Frogmen

Through a joint effort of the Airborne-Air Mobility Department of The Infantry School at Fort Benning, Georgia, and Underwater Demolition Team No. 21 of the U. S. Navy at Little Creek, Virginia, a new dimension in mobility is being attained by frogmen who are undergoing voluntary airborne training.

Recently 21 officers and enlisted men from UDT 21 completed airborne training. The frogman course, like the airborne, is strictly for volunteers. Frogmen at Little Creek are not required to go through jump school but such participation is encouraged. At present almost 60 of the more than 150 students have taken jump training.

After returning to Little Creek, para-frogmen engage in frequent practice jumps over both land and water. In descents over water, the sailors utilize the Capewell release—a new device developed at Fort Benning to separate the canopy from the parachute harness.

During the course, men learn UDT tactics, use of explosives and other equipment. Utilization of underwater breathing apparatus is taught in an advanced course. The instruction is climaxed by an eight-mile open-ocean swim.

"Static line jumps are followed by a 'jump and pull' where diver exits the aircraft, then stabilizes and pulls his rip-cord."

Starting his free fall, jumper above spreads arms until last possible moment as he nears the ground, below.

Appealing Sport

WHY should anyone want to free fall? The answers are many and varied. Some claim the attraction of an individual competitive sport; others contend that the sensation of gliding through space, of being able to maneuver the body as an air-foil, is the main attraction. Whatever the reason, having once experienced free fall, almost everyone comes back for "seconds."

Parachuting for Sport

How does one go about becoming a sky diver? First, you must join an established military parachute club or organize one at your own installation. To organize a new club, considerable groundwork is necessary. Command approval must be obtained, a constitution and by-laws written and approved, equipment procured and endless other details accomplished.

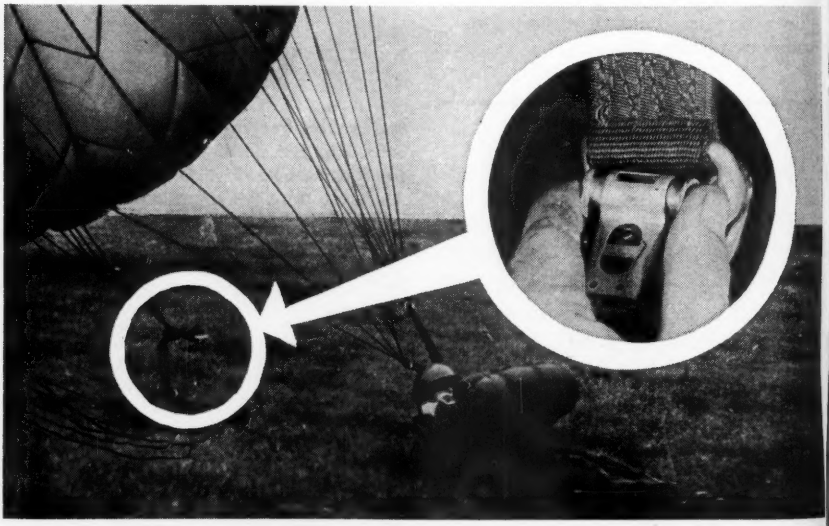
Procedures are prescribed in Army Regulations 95-19, but anyone planning to organize such a club would do well to consult with an existing nearby group or accept the offer of the XVIII Airborne Corps or Fort Benning Sport Parachute Clubs to send a "do it yourself" kit on the organization of military parachute clubs. Inquiries should be addressed to the XVIII Airborne Corps Sports Parachute Club, Fort Bragg, North Carolina, or the Benning Sports Parachute Club, Fort Benning, Georgia.

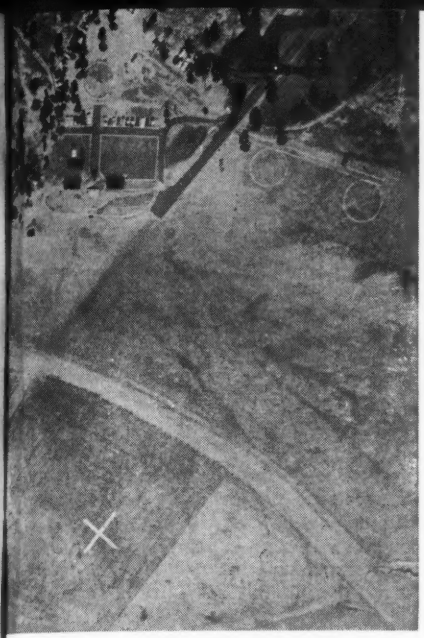
Having once organized or joined a club, the work begins in earnest. Ground training for the qualified military parachutist is largely limited to refresher activities. Novices, however, may expect many hours of practice on landing falls and standard and emergency procedures.

Ground training is followed by a minimum of five static line jumps from light aircraft. Even the "old troopers" must proceed through

Quick Release

A CANOPY RELEASE ASSEMBLY that separates parachute harness from canopy when a paratrooper hits the ground is now being used at Fort Benning, Georgia, for the first time by the U. S. Army Infantry School Airborne-Air Mobility Department. The assembly is designed to enable a paratrooper to free himself quickly and safely after hitting the ground in a high wind. In combat, it allows quick release to avoid enemy fire.



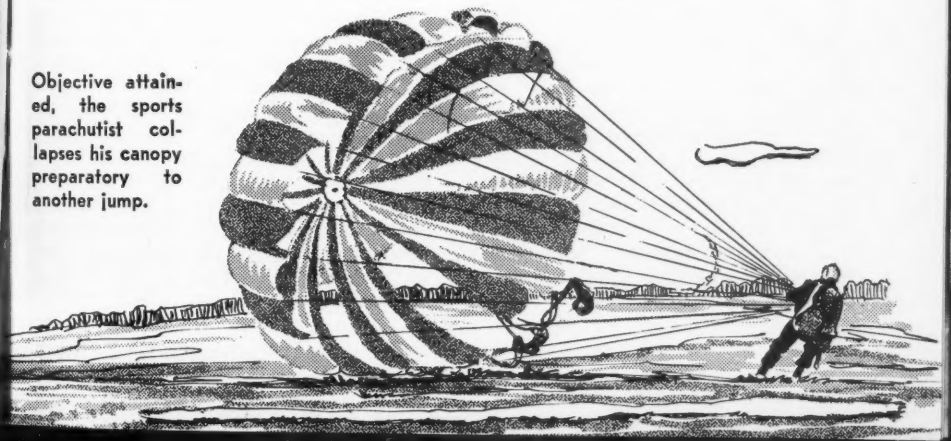


"X marks the spot"—objective of the jumper's free fall. He opens his chute at about 2,000 feet to make perfect landing.

this stage, as experience has shown that it takes a minimum of five jumps for the jumper to adapt himself to a radically new body position and to learn to activate and control the steerable chute.

Static line jumps are followed by a "jump and pull," where the diver exits the aircraft, stabilizes and pulls his rip-cord. This is followed by delayed falls of 5, 10, 20 and 30 seconds. From there on, prolonged delays and aerial work constitute the challenge.

IF YOU feel that sky-diving is not your cup of tea, don't permit yourself to witness a sky-diving demonstration. The sight of two divers falling 8000 feet while performing an array of graceful aerobatics culminating in the mid-air exchange of batons, has been known to lure even the most confirmed "leg" into a parachute harness which, once tried, becomes a fascinating addition that can take fishermen from their streams and golfers from their fairways.



Objective attained, the sports parachutist collapses his canopy preparatory to another jump.

NEWS of professional interest

Pershing Firing Test

In a test of structure and control system, an Army Pershing ballistic missile was successfully fired in June from Cape Canaveral, marking the fourth complete success in as many tests of the Pershing. The missile was pre-set to perform erratic movements in flight, and performed a veritable "rock and roll" arc over the Atlantic. As in other tests, only the first stage was live, with the second stage weighted to simulate a live motor.

Officers Assignment Directorate

Officer assignments now are under direct supervision and control of the Deputy Chief of Staff for Personnel. Effective 1 July, the former Officers Assignment Division, Office of The Adjutant General, was transferred to the Office, Deputy Chief of Staff for Personnel, and has been designated as the Officers Assignment Directorate. Major General George E. Martin, who had served as Chief of the Division, has been designated as Director of the reorganized unit. The move was made to facilitate staff coordination in the field of officer personnel assignment.

One for Three

A light observation helicopter will be developed to replace three aircraft now in service by the Army. The new helicopter project is part of a long-range Army aviation program drafted recently by a special Army Aircraft Requirement Review Board, calling for detailed studies on technical problems associated with development of deep penetration surveillance aircraft and transport aircraft within the battle area. Two different designs for the new machine will be picked for development as a result of industry competition.

The new helicopter is expected to replace the L-19 observation airplane, the H-13 and H-23 reconnaissance helicopters. Plans call for powering the new craft by turbine engine. It will be lighter and smaller than the existing H-13, having cruising speed of about 126 miles an hour, operate for minimum of three hours without landing, and have payload of 400 pounds plus pilot and fuel.

Chemical Research in Defense

The Army Chemical Center Laboratories will serve as primary agent for toxicological research in the Department of Defense—an activity which has been consolidated under general direction of the Advanced Research Projects Agency. The ARPA program concerns new chemical products which may be incidentally a hazard to health under anticipated working conditions. Propellants, fuels, coatings, solvents, lubricants, explosives and the like will be studied in an effort to safeguard the health of individuals exposed to them. Chemical Warfare agents are specifically excluded from the studies.

Freedoms Foundation Contest

Winner of the next annual Freedoms Foundation letter writing contest will attend the inauguration of the next President of the United States on 20 January 1961 in Washington, D. C. According to officials of the Foundation, arrangements have been made for the top service winners to ride in the inaugural parade, to have reserved seats at the inaugural ceremonies and to be guests at several functions and receive their awards at special ceremonies. Topic of the Freedoms Foundation contest this year is "My Vote—Freedom's Privilege."

International Understanding

At the U. S. Army Ordnance Corps' Aberdeen Proving Ground, Maryland, American officers are learning more about the customs and way of life of students from foreign lands. Once a month, an International Night is held at the Officers Club. Foreign officer students act as hosts, usually showing a movie, entertaining with the country's music and native dances, and displaying the country's industrial and agricultural products. In another phase of this program, the School's Allied Liaison Office organizes tours to historical, cultural, and industrial centers in the Baltimore-Washington, D. C. area.

Marshall Memorial Dinner

Final highlight of the 1960 annual meeting of the Association of the United States Army will be the inauguration of the George Catlett Marshall Memorial Dinner. The Honorable Robert A. Lovett, former Secretary of Defense, will be speaker.

More than 3,000 are expected to attend the various sessions on 8-10 August in Washington, D. C. Other speakers will include the Honorable Wilber M. Brucker, Secretary of the Army; General Lyman L. Lemnitzer, Army Chief of Staff; General Bruce C. Clarke, Commanding General, U. S. Continental Army Command; General Dr. Hans Speidel, Commander, Allied Land Forces, Central Europe; Dr. Raymond L. Garthoff, author and expert on Soviet military affairs. The Marshall Memorial Dinner will conclude the sessions on 10 August.

Civilian School Program

Active enrollment of officers in the Army Civilian Schools Program has risen from 658 in 1959 to a present total of 771, according to the Officers' Assignment Directorate. This continues a trend which dates from the close of the Korean War.

A shift in emphasis from the social to the physical sciences is also evident. Approximately 60 percent of Army officer-students are now in physical science fields, compared with approximately 40 percent four years ago.

This spring approximately 345 officer-students graduated from 65 institutions of higher learning in the United States and abroad. Following graduation, students are placed on a three-year utilization tour to put their training to practical use. (See "Brainpower and Manpower," August 1960 DIGEST.)

A recent revision of AR 621-5, General Education Development, provides greater assistance to officers now working for their Bachelor's degree. The Final Semester Plan, under which an Army member may be authorized to attend college up to a semester and a summer session, to complete residence requirements for a degree, will be increased to a full calendar year. The present maximum, however, will be continued for those working toward a graduate degree.

Priority will be given initially to those individuals needing the least time in residence to complete work for a degree.

New Technique for Old

Intense cold has been found to be more economical and effective than heat in removing old asphalt floor tile in a test at the U. S. Army Chemical Corps Proving Ground, Dugway, Utah. Previously, tile was removed by heating with blow-torch, then scraped or pried loose. When dry ice was used, in about five minutes the mastic compound released the tile and it could be shoveled away.

High-Speed Tape Transmitter

By using high-speed magnetic tape transmission operating over standard telephone voice-type circuits, the Army has reduced a job that once took 13 hours to about an hour. A prototype of the new system—developed for the Army by Collins Radio Company, Burbank, California—links computer centers of the Signal Supply Agency in Philadelphia with the Lexington, Kentucky, Signal Depot 500 miles away.

The Philadelphia Agency is equipped with a large computer that stores information on all available Signal supply items. The system uses two compact, fully-transistorized cabinet units at each end of the circuit—one transfers computer memory data to magnetic tape; the other converts taped data into electrical signals to be transmitted over telephone lines.

News of Professional Interest

Nuclear Research Reactor

Dedication of the first nuclear research reactor recently was marked by Department of the Army in ceremonies at Watertown, Massachusetts. The new reactor will be used by Ordnance Materials Research Office and its supporting laboratories in studies of magnetic properties, fundamental atomic and molecular behavior in materials, and effects of heat treatments on the physical structures of metals by use of short-lived radio-isotopes. Basic studies will seek to improve materials used in military equipment of the future.

Research Reports

Now available to the public in highly condensed form is a compendium of scientific research monitored by the Army Research Office, Office of the Chief of Research and Development. Seven volumes of the 1960 Army Research Task Summary (ARTS), totalling more than 3,000 pages, have been placed on sale through the Office of Technical Services, Department of Commerce, Washington 25, D. C.

The first seven unclassified volumes contain information of Army research tasks in progress as of 30 September 1959. Volume 7 is a general cross-referenced index now offered to the public for the first time. Volume 8 is classified and is not available. The volumes cover more than 2,600 Army research tasks, in which more than 400 profit and nonprofit research activities, 200 schools and colleges, 24 other government agencies and 60 Army installations are engaged.

Airborne Measuring Devices

A rocket-borne radiosonde and an airborne version of the tellurometer are two late developments in the field of accurate measurement that have recently been evolved by the Army.

The radiosonde electronically probes atomosphere up to a height of 40 miles for weather data—twice the usual ceilings for weather balloons. Information is expected to be of benefit in aircraft and missile design, as well as artillery and missile aiming. Designed and built at the U. S. Army Signal Research and Development Laboratory at Fort Monmouth, the six and a half pound device is packed into the nose cone of a 77-pound ARCAS rocket, specially developed by the Office of Naval Research. The device is being procured under contract with Atlantic Research Corporation, Alexandria, Virginia.

The tellurometer is an electronic distance measuring instrument that eliminates the time-consuming taping method used in surveying. Currently being tested by the U. S. Army Engineer Research and Development Laboratories at Fort Belvoir, Virginia, the airborne device is expected to provide a position determination or a distance measurement up to 150 miles with a high degree of accuracy. Range of the ground tellurometer is 40 miles. The Airborne Tellurometer was built by Tellurometer Ltd., Cape Town, South Africa, builder of the original ground instrument.

Enlisted Benefit Association

Officials of the Armed Forces Enlisted Personnel Benefit Association have announced that members of the Association may now continue membership and group coverage into retirement and until age 65. The Association is a non-profit organization established by senior enlisted personnel to advance economic interests of enlisted personnel. Major benefit is the $10,000 group life insurance plan. Emergency loans also are made available. Under the new provisions, when a member retires from active duty he may enter "Associate Member" status and continue the same basic insurance contribution paid while on active duty.

Industrial Manpower

Publication of "The Army and Industrial Manpower" has been announced by Office of the Chief of Military History. It is the 48th volume published in the series "United States Army in World War II," and seventh in the subseries on the War Department. The book was written by Dr. Byron Fairchild, co-author of two other volumes in the series, and Dr. Jonathan Grossman. Dr. Fairchild has been a civilian professional historian with the Army since 1949 while Dr. Grossman is currently Presentation Specialist with the Office of the Chief of Transportation. The volume is on sale for $2.75 from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Food Preference Survey

Soldiers' food preferences as established in a ten-year survey on some 400 food items in the military feeding system, are exerting influence on type and quantities of foods procured by the Army Quartermaster Corps as Single Manager of food for all the Armed Forces.

Besides proving the obvious—that the young soldier prefers strawberry shortcake to fried parsnips—the survey codifies for the first time his specific preferences on all food items normally included in military menus. This establishes predictable acceptability ratings. The resulting knowledge will minimize overprocurement of specific items in a field where even minor errors are costly.

Results of the survey have recently been published in a report entitled "Food Preferences of Men in the U. S. Armed Forces," by the Quartermaster Food and Container Institute for the Armed Forces, Chicago. The report is expected to be of interest to hospitals, industrial cafeterias, schools and other organizations having problems common to those of Service feeding.

Pacific Communications Net

Through use of advanced propagation techniques to give more than 99 percent reliability, a 6,500 mile communications system recently was put into operation to make the Pacific area virtually a trouble-free network for the Armed Forces.

Called the Pacific Scatter Communication System, the new network uses ionospheric propagation techniques to send radio signals up to the ionosphere to bounce back in scattered fashion to receivers on the earth's surface. The system was completed by the Army and Page Communications Engineers, Inc., Washington, D. C., and represents another important achievement of the Army Signal Corps.

Eight interconnected stations make up the new system, which is one of the largest of its kind in the world. Local communication centers at several of the relay points provide entry to the system for military activities in their areas. The system is managed by the Army Signal Corps as part of the world-wide Strategic Army Communications Network (STARCOM) and will be part of the Defense Communication System.

Missile vs Missile

VALUABLE information pertinent to development of an anti-missile defense was gained when an improved Nike-Hercules guided missile destroyed a Corporal ballistic missile recently at White Sands Missile Range, New Mexico.

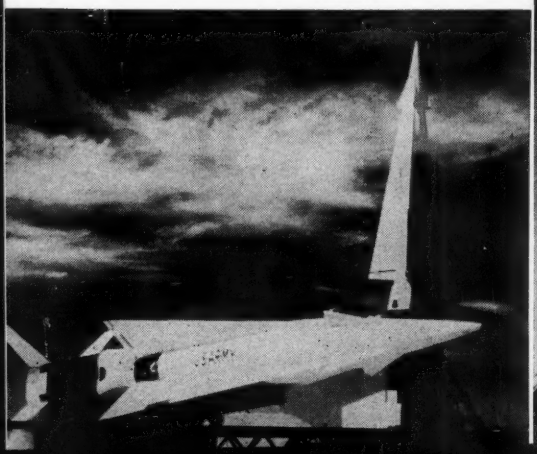
Utilizing improved equipment and armed with a high explosive warhead, Hercules intercepted and destroyed an incoming Corporal high above the desert missile range. This was the first known "kill" of a guided ballistic missile by another missile, although previously the Army Hawk had intercepted and destroyed an Honest John short-range unguided artillery rocket.

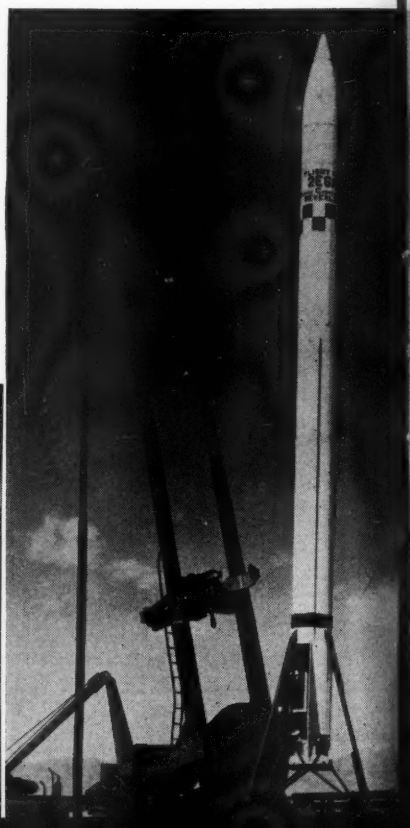
As the Corporal was launched southward, the Hercules was fired north, and the two closed at a speed of thousands of miles an hour, terminating in a flaming intercept. Actually the target presented by the Corporal—which is much smaller and has less range and speed than the inter-continental ballistic missiles—was smaller in radar reflectivity than that for which the original Nike-Hercules system was designed. Improved radar ground equipment guided the missile to the kill.

The Corporal is the Free World's first operational ballistic missile. It is a liquid-propellant weapon with a 75-mile range. Nike-Hercules—an operational solid fuel guided surface-to-air missile—is the second generation Nike missile, newer and larger than Nike-Ajax, the Army's first air defense guided missile in operational use since 1953. Nike-Zeus, a third generation of this air defense weapons system, now is under development by the Army as a defense against the intercontinental ballistic missile.

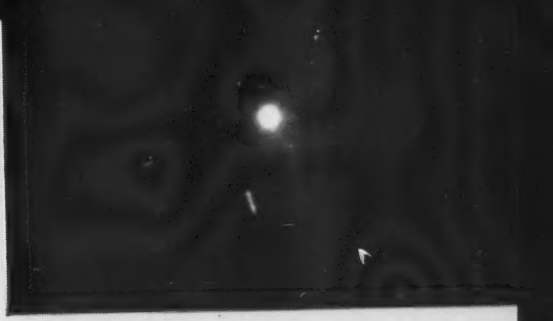
Improved elements used in the Nike-Hercules test were developed under cognizance of Western Electric Company and were turned over to Bell Telephone Laboratories by Army Ordnance Corps for demonstration. Douglas Aircraft is prime contracter on the missile and launcher.

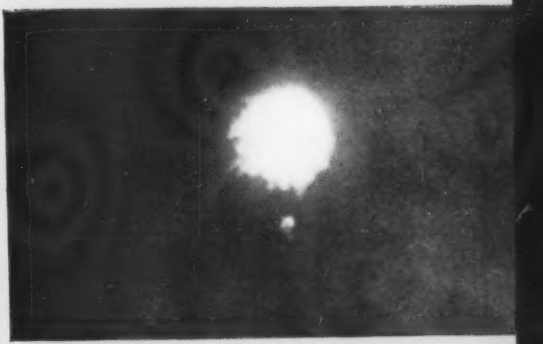
Nike-Hercules missile, left below, and slender Corporal, below, are of type engaged in intercept action in photos at right.





Nike-Hercules Intercepts and Destroys Corporal





A COMMANDER'S TRIBUTE

"It gives me great pride to extend my personal congratulations to the United States Army Infantry on its 185th Anniversary.

"As a former Infantryman I have long felt a close attachment to the often unsung, but always indispensable, Doughboy.

"During World War II, I was a witness to his progress from the sand hills of North Africa, through Italy, to the hedgerows of Normandy and in Southern and Eastern France, and Germany. In the Pacific, his courage carried him across island and atoll—from Corregidor to Japan. In Korea, it was again the courageous Infantryman who paid the heaviest price in preserving our freedom. And in all of these battles, he endured hardships, made sacrifices and distinguished himself with uncounted acts of valor.

"Today, I again share the Infantryman's pride in the vital job he is performing in preserving the peace. The hardships which he must endure today and the sacrifices he must make are of a different order than those experienced in combat. Nonetheless, the job he performs today requires the same courage, skill, determination and devotion to duty as in the past. With the other members of our Armed Services team, and our Allies, the Infantryman will continue to be the bulwark of the Free World's defense."

President Dwight D. Eisenhower,
in a letter now displayed at
the Infantry Center Museum,
Fort Benning, Georgia.